

- ▶ 9 Amiga BASICs
- ▶ 5 Scene Generators

Plus!

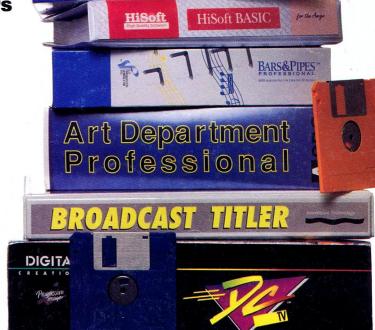
- DCTV
- Video Toaster
- AD Pro
- Scala
- Bars&Pipes Professional
- Broadcast Titler 2
- And More Reviews & Games

Also:

Get Started in Video

OPES-EBBO NZZI





With every \$1595 Video Toaster you get the 6 most powerful graphics products ever created for the Amiga...

1. LightWave 3D Modeling, Rendering and Animation

Really three programs in one, LightWave will make you forget everything you know about 3D on the Amiga.

LightWave Modeler includes all the powerful object creation tools you expect in a state-of-the-art 3D system. Unique real-time perspective mode helps you visualize your object as you create it. Includes over one hundred ready-made objects.

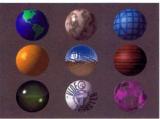
LightWave Renderer is the best available on a personal computer, regardless of cost. Not only is it the fastest renderer by far, but it has all the features you need to create network quality 24-bit 3D graphics, including: Variable resolution (up to 1536 by 960), Ray-traced shadows, Texture mapping from live video, Bump mapping, Reflection mapping, Unlimited light sources and Particle systems with variable motion blur. Byte Magazine concludes, "The renderer is a master-

piece. This is hot stuff."

LightWave Animation is the most powerful, hassle-free animation system ever created. Highly interactive real-time wireframe editing will have you creating complex spline-based animations in a matter of minutes. Lou Wallace in *Amiga World Magazine* says, "Having used just about every 3D rendering package on the Amiga market, I can truthfully say that LightWave absolutely blows away everything."

2. Overlay Genlock and Luminance Key

The Toaster Genlock lets you overlay your Amiga graphics on any live video source. Used in conjunction with the Toaster's frame buffers, you can run Amiga animations over 24-bit ToasterPaint or LightWave backgrounds for dazzling results.



Light Wave 3D



ToasterPaint

For more powerful overlaying capability, use the Toaster Luminance Key. Works like a Chromakey except the background is black or white instead of blue. You can, for example, key your subject in front of a weathermap or any other graphic or live video source.

3. ToasterPaint 24-bit Hi-res Paint System

The most advanced video paint program ever created for a personal computer, ToasterPaint is winning raves for bringing true-color painting to the Amiga for the first time. Using the Toaster's Frame Buffers, Toaster-Paint is the only PC-based paint system capable of displaying 24-bit YIQ-encoded broadcast-quality video, in short, the sharpest video images possible from a computer.

ToasterPaint makes powerful network graphics tools easy to use. Just point-and-click for: Variable transparency, Smooth shading, Blending, Range, Colorize, Blur and RubThru. Use texture mapping to warp, bend, stretch and twist images. The Toaster's all-in-one design allows



Toaster Character Generator



Genlock/Luminance Key

cutting and pasting between Toaster Character Generator, LightWave or grabbed video images. Video Magazine raves, "We were able to create images that rival those of professional video paintboxes... ToasterPaint alone may be worth the price [of the Toaster]."

4. Toaster Character Generator 24-bit 35-nanosecond resolution

With twice the resolution of any other Amiga Character generator, and over 4000 times the color, Toaster CG gives you the network quality that clients demand. Toaster CG works with the Toaster's 24-bit frame buffer and linear keyer to produce sharp, jaggie-free text with perfect drop or cast shadows. The Toaster hardware also makes other special features possible, such as transparent shadows, band-free smooth color gradations and smooth dissolves between pages. These high-end features are impossible with software-only CG's. Only the Video Toaster has 16.8 million color ChromaFonts and the

ability to use digital effects to tumble, spin, peel, and warp text in real-time.

5. Two 24-bit Frame Buffers

The highest quality video output for any personal computer ever. The Video Toaster has not just one, but two high resolution frame buffers that each output 16.8 million colors (24-bit). The Toaster is the only video output for the Amiga that is legally broadcastable at the network level. Our unique YIQencoding means Toaster colors won't bleed, Toaster edges won't crawl, and Toaster pixels won't smear — in other words, the sharpest video image possible.

The Video Toaster meets not only all RS-170A specs but the tougher FCC specs as well. Don't be fooled by low-end "24-bit video converters" that trade resolution for more colors. Only the Toaster can output full NTSC resolution, YIQ-encoded video at 60 fields per second.

6. Toaster Real-Time 24-bit Frame Grabber

From the company that defined video digitizing standards for the Amiga comes the ultimate frame grabber. Freeze video instantly from your color video camera, camcorder, laserdisc player or cable TV, and display images in 16.8 million colors and full video resolution. With a Toastercompatible TBC installed (starting at \$995 retail), you can grab frames from any taped video source as well. The frames may then be used by ToasterPaint, ToasterCG or LightWave 3D for further manipulation. Images may be loaded from disk into the Toaster Frame Buffers in two seconds or less for fast-paced multimedia presentations.

and something truly phenomenal... your own TV studio.

7. Toaster Digital Video

"An almost unbelievable breakthrough." That is what the press and public have been saying about the Toaster's Digital Video Effects. For the first time you can process live video on your desktop just like the networks do.

The Toaster's four custom VLSI chips let you warp any of four live video sources in real-time (60 fields per second) and in 24-

bit color.

 Expand Mirrors

· Split Squeeze

· Slide

• Pull

· Roll

Trajectories

· Analog Trails

· Digital Trails

- Stretch
- Zoom
- · Blinds
- · Slats
- · Curtains
- Mosaic
- · Zoom Trails · Whips · The Transporter!

Toaster Control Panel 8. Four-Input Production

room of a TV station, you perform transitions between video sources with a click of your mouse. The Video Toaster Switcher outperforms broadcast switchers costing tens-of-thousands of dollars. It performs cuts, smooth fades, and pattern wipes between any of seven sources including four live video inputs, two 24-bit frame buffers, and a color background generator — ideal for four-camera studio productions or post-production video editing.

Even with no live video sources you can do incredible effects between LightWave, ToasterPaint, and

ToasterCG images for exciting presentations

9. ChromaFX Color Processor

ChromaFX gives you complete control over all aspects of brightness, contrast and color of your live video image. Your screen will explode with color negatives, monochrome, solarization, posterization, and color vignettes. Process your video to look like old film with sepia toning or high contrast black-and-white. Or get that rock video look by mixing black-andwhite and color video. In addition, many subtle effects are possible, like day-for-night or dark sky filters. Powerful controls let you design your own color effects with limitless combinations, or use any of the dozens of built-in effects like Nuke, Chrome, Snow Lights, Snow Cycle, Sunset Filter, Zebra Stripes and many others. The VideoToaster card & software sell for \$1595 and are available at an Amiga dealer near you.





Video Toaster, LightWave 3D, LightWave Modelor, ToasterPaint, ToasterCG, ChromaFX are all registered trademarks of NewTek, Inc. Amiga is a registered trademark of Commodore-Amiga, Inc. Any video tape input to the Toaster must be time base corrected. Toaster must be time base correctors. Toaster compatible time base correctors start at \$995 retail. The Video Toaster requires an Amiga 2000 computer with hard drive and at least 5 megs of RAM.

© NewTek, Inc. 1991.

Switcher Just like the master control

Toaster Digital Effects

• Spin

Page PeelTiles

· Push Off

remove the last barrier to network

quality video on a desktop. There is

nothing else like this. These effects

Week Magazine says, "As capable

as gear normally costing \$60,000.

tion. Real-time effects include:

• Flip

• Tumble

• Warp • Push On

Toaster Digital Effects are as incredi-

ble for multimedia and presentation

graphics as they are for video produc-

must be seen to be believed! Business

Call today for our demonstration tape about the Toaster, produced entirely with the Toaster.

See for yourself the incredible results possible with the Video Toaster.

Starring NewTek's own Kiki Stockhammer, and featuring animation by 3D artist and LightWave programmer Allen Hastings. Like the Toaster itself, this videotape will knock your socks off. \$4.95 including shipping and handling. Visa, MC, AmEx or COD orders accepted. Call (800) 843-8934 or (913) 354-1146.

including shipping and handling

1-800-843-8934

Circle 53 on Reader Service card.

- 1000, AND - 2000. ATARI ST AND ATARI STE.

REAL YOU CAN BLLTHES THE NO.1 NEW YORK TIMES BESTSELLER

SO REAL, YOU CAN SMELL THE SMOKE

"ROMEO 25 - THIS IS MIKE 77 -SPOT REPORT - 5 T72 TANKS MOVING WEST-GRID 190852 -CONTINUING OVER

Capt. Sean Bannon snapped his head to the left. There was only one place where the Russians could be, and that was on the hill 2200 metres away. All the training, planning and preparations were over. Team Yankee was about to learn if the team's seventy nine men and twenty five million dollars worth of equipment could do what they were supposed to do.

Team Yankee is designed to test your leadership and tactical skills to the limit, You can display in either "quadrant mode where all four platoons may be controlled at once

Full-screen Mode where the display homes in on just one platoon.



To the right of the five icons which represent the various types of weaponry available to the unit.

The major capability on the quadrant map screen is to alter the movement and formation of any platoon. The whole of the map may be viewed at once, or you may zoom into any portion of the battlefield using the ico to the right of the map.

MI ABRAMS TANK Main Gun Ammo: 55 Roun Armor: Chobham(steel, ceramics, plass Combat Weight: 54.5 metric tons

You have the flexibility to display either an overhead map view of the surrounding area, a simulated 3D view of the battlefield, or a status screen showing the performance of all vehicles in a platoon. Irrespective of which screen mode you choose during battle, there is a constant column of information to the right of the screen.

MACHINE GUN - which is always available to the player and has an 'infinite' number of rounds SMOKE - a smoke grenade which allows enemy vision to be obscured. HEAT - a high explosive anti-tank round track of the four tank platoons you SABOT - an armor-piercing tungsten shell
TOW - a high-range anti-tank missile control using the unique 4 quadrant

> from an entire Soviet tank battalion at night! Five major scenarios based on the battles

featured in the **New York Times** No. 1 best seller Team Yankee.

Team Yankee@Presidio Press, 1987, Softw. Oxtood Digital Enterprises, All rights re-IBM is a taxiomath of International Business Machines Inc. Amugais a trademark of Commodore El-Atari and ST are trademarks of Atari co-Team Yankes, The Novel was written by Harold Coyle. Made in the UK.



display. Defend Hill 214 from Yuri

Potecknov's crack tank platoons, attack

Objective Link through sniper fire

from forests, protect the Langen Gap

map in any of the four directions. Dead Stop icon, This platoon to come to a ead halt when click

Scroll icon: The four arrows underneath

Team Yankee is

the definitive action

tank warfare. Watch

scenarios unfold on

3D battlefields with high

definition graphics and keep

simulation of modern

will prove very useful in confusing your enemy if you find yourself in a tight corner

compass display.

imaging This feature is very useful for the central portion lentifying vehicles of the scree ged on the edge of forests. factor of 10. Contary to popular belief the thermal

Echelon right

Infra red (or thermal)

image is green and

Laser range finder. The range finder will lock on to a reflective target if the firing cursor is placed directly over the object. Wide formation icon. This

n is

Zoom. When this

etween vehicles in your platoon to 100 metres Narrow formation icon This reduces the inter vehicle spacing in your latoon to 50 metres. Vee, a vee formation

Echelon left - places your vehicles on a right to left diagonal relative to your direction.



places you to right diagona relative to your direction. relative to

Column - places direction. your vahicles in a line ahead

relative to your direction.

In line - places

Wedge - places your vehicles in a wedge

ReadySoft Inc, 30 Wertheim Court, Unit 2, Richmond Hill, Ontario, Canada L4B 1B9. Tel: (416) 731-4175 Fax: (416) 764-8867

$\cdot \mathbf{C} \cdot \mathbf{O} \cdot \mathbf{N} \cdot \mathbf{T} \cdot \mathbf{E} \cdot \mathbf{N} \cdot \mathbf{T} \cdot \mathbf{S} \cdot$

FEATURES

BETWEEN A SLOT AND A HARD PLACE By Morton A. Kevelson	22
faster, then you're thinking hard drive for your Amiga. But it's usually	
not the unit-it's the SCSI hard drive	
interface—that's the real deciding fac-	
tor. Here's the low-down <i>and</i> the test results on 14 leading contenders.	
A DACTO- MARINE	

AMIGA BASICS: MAKING A RUN FOR THE ROSES By Mark Jordan . . 33 If you thought plain-vanilla Amiga Basic was the only ticket available, think again! Check out these eight other ways to the winner's circle when it comes to developing programs BASIC-style in today's Amiga market.

COLUMNS

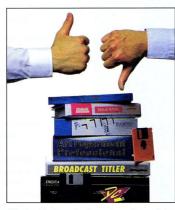
CHIEF CONCERNS By Doug Barney
What makes being the Editor of AW
so much fun? It appears what he
really gets off on most is talking to
readers-whoever you are!

VIDEO SUITE By Joel Tessler 44
By popular demand, AW kicks off a
brand-new video column. Each
month a different Amiga video expert
will offer tips, techniques, and practical advice. To get everyone rolling,
No. 1 answers the 10 most frequently
asked questions about video.

DEPARTMENTS

8

OVERSCAN	
We hope you like our new, all-in-one	
coverage of Amiga news, new prod-	
ucts, and new network downloads,	
which "scans" the globe for Amiga-	
specific information.	



Whether it's the aye's, the nay's, or the maybe's that have it on our cover (inset above), AW has been gathering the ballots over the last few weeks on a great many new Amiga products to bring you our Annual Review Issue. Hardware, software, programming, games—the whole gamut—are up for evaluation and comparison in this very special review number. So get involved and go check out the fruits of our labor!

AW PRODUCT INFORMATION ... **96** For every article, review, or newproduct announcement in **AW**, the relevant information about contacting manufacturers or distributors is contained in one central list each month.

REVIEWS

ART DEPARTMENT PROFESSIONAL (ASDG)	1
This successor to the image processor TAD is a <i>lot</i> more than just an upgrade.	
LANDSCAPE GENERATORS Five scene-generating packages, in-	1
cluding the eagerly awaited Vista Pro	

from Virtual Reality.

purpose music-making program.

DCTV (Digital Creations)	7
Millions of colors are at your com-	
mand with this 24-bit graphics hard- ware/software combo.	
SCALA (CIZE)	7

Storage Systems).......

GAMES

CRIB NOTES By Peter Olafson 48 Olafson does his General Schwarzkopf imitation this month to put you on the offensive with tactical advice on mastering Future Wars.

DAS BOOT (Three-Sixty Pacific) 48 The novel and popular film comes to life in this WWII sub simulator.

BLUE MAX (Three-Sixty Pacific) 50 Combat missions with eight classic WWI biplanes.

AMIGAWORLD CATALOG

AmigaWorld Special Products are now presented in one handy catalog section: AW Videos (including Animation Video II and The Video Toaster), Tool Chest, AW Game Package, Tech Journal, AW Books, and more. Plus free special-incentive bonus with all orders. Pages 70–73.

New! Redesigned and FAAASTER

50MHZ 68030 POWER

Now Expandable to 32MB of 32-bit RAM!



- Optional 3.5" IDE/AT hard disk up to 340MB capacity (13ms).
- Built-in Autobooting IDE/AT hard disk controller.
- 4MB to 32MB of 32-bit wide High Performance memory.
- 50Mhz 68030 CPU and 50Mhz 68882 Floating Point Unit.

Our new faster and more expandable A3050 50Mhz accelerator kit will turbo-charge your Amiga 2000® beyond your wildest dreams.

Check out these features:

- ✓ Uses GVP's new custom designed 4MB, 32-bit wide, SIMM32™ memory modules with state-of-the-art 4MB, 60ns, DRAMs.
- ✓ ZERO SLOT SOLUTION! Even with a full-blown 32MB, 50Mhz, A3050 kit installed in the A2000's "CPU" slot, ALL ZORRO II expansion slots are left free for unlimited future expansion!
- Exciting new 3.5" hard disk "bundles". Choose between the 1" high, 120MB (15ms) model or the incredible halfheight 340MB (13ms) model.
- ✓ Converts an A2000 into the fastest Amiga in the world. There is truly NO competitive product.
- √ 68000 fall-back mode for timing sensitive applications (e.g. some games).
- ✓ GVP is the world's leading manufacturer of accelerator products for the Amiga.



GVP is a trademark of Great Valley Products, Inc. Amiga and A2000 are registered trademarks of Commodore-Amiga, Inc.

GREAT VALLEY PRODUCTS INC.
600 Clark Avenue, King of Prussia, PA 19406
For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

Dealers Circle 21 on Reader Service card.

Consumers Circle 22 on Reader Service card.

STEPHEN ROBBINS, Publisher

DOUGLAS BARNEY, Editor-in-Chief DANIEL SULLIVAN, Executive Editor SWAIN PRAIT, Managing Editor BARBARA GEFVERT, Senior Editor JANINE L. JACKSON, Review Editor

LOUIS R. WALLACE, Senior Editor, Technology; Special Products Manager LINDA BARRETT LAFLAMME, Editor, The AmigaWorld Tech Journal TIM WALSH, Technical Editor

JOHN WOLFSKILL, Senior Writer, Technology
MARE-ANNE JARVELA, Special Products Coordinator

GENE BRAWN, JOEL HAGEN, DAVID T. MCCLELLAN, Contributing Editors

HOWARD G. HAPP, Art Director

LAURA JOHNSON, Assistant Art Director

ANN DILLON, Designer

ALANA KORDA, Production Supervisor

DEBRA A. DAVIES, Typographer

KENNETH BLAKEMAN, National Advertising Sales Manager
MICHAEL MCGOLDRICK, Sales Representative
BARBARA HOY, Sales Representative
HEATHER GUINARD, Advertising Sales Representative,
Partial pages & InfoMarket, 1-800-441-4403, 1-603-924-0100
MEREDITH BICKFORD, Advertising Coordinator
GIORGIO SALUTI, Associate Publisher, West Coast Sales, 1-415-363-5230
2421 Broadway, Suite 200, Redwood City, CA 94063

WENDIE HAINES MARRO, Marketing Director
LAURA LIVINGSTON, Marketing Coordinator
MARGOT L. SWANSON, Customer Service Representative;
Advertising Assistant
LISA LAFLEUR, Business and Operations Manager
MARY MCCOLE, Video Sales Representative

SUSAN M. HANSHAW, Circulation Director, 1-800-365-1364
PAM WILDER, Circulation Manager
LYNN LAGASSE, Manufacturing Manager



ROGER J. MURPHY, President

NANCY GENDRON, Assistant to the President
PAUL BOULE, Vice President/Group Publisher
JIM MCBRIAN, Vice President/Group Publisher
STEPHEN C. ROBBINS, Vice President/Group Publisher
DENNIS S. CHRISTENSEN, Vice President of Manufacturing/Operations
BONNIE WELSH-CARROLL, Vice President, Circulation & Planning
JEFFREY D. DETRAY, Director of Technology Research
LINDA RUTH, Single Copy Sales Director
DEBBIE WALSH, Newsstand Promotion Manager
WILLIAM M. BOYER, Director of Credit Sales & Collections
DOREEN MEANS, Systems Coordinator

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. AmigaWorld is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is \$29.97, one year; \$46.00, two years; \$64.00, three years. Canada \$38.97 (U.S. funds), one year only. Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (prepayment is required on Foreign Surface and Airmail subscriptions in U.S. funds drawn on U.S. bank). All rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. Entire contents copyright 1991 by TechMedia Publishing, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. Postmaster: Send address changes to AmigaWorld, Subscription Services, PO Box 58804, Boulder, CO 80322-8804. Nationally distributed by Kable News Co., AmigaWorld makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. AmigaWorld assumes no responsibility for damages due to errors or omissions.

Beauty and Functionality Redefined

THE NEW SERIES IT A500-HD+

The Next Generation in Amiga® 500 Add-On Peripherals

IMPACT

Turn your A500® into a Serious and More Fun Computing Tool Today!

GVP's New SERIES II A500-HD+ is The Ultimate in Hard Drive, Memory and Expandability for your Amiga 500. Major features include:

Leading Edge

Same high-tech custom VLSI and FAAASTROM™ features as GVP's new Series II A2000 SCSI-RAM Products.

Foresight

Unique new "Mini-Slot"™ brings out all the A500 expansion bus signals, allowing for exciting future expansion options - the only intelligent alternative to risky "Pass-Through" functionality.

Reliability

Includes internal fan to keep you cool and robust power supply ensuring your A500 power supply will not be overloaded. GVP will not compromise on quality and reliability!

Memory Expansion

Internal RAM Expansion up to 8MB using easy-to-install SIMM memory modules.

Custom injection-molded styling perfectly matches your A500 for unequaled beauty and elegance, setting a new standard for A500 peripherals.

State-of-the-Art

New 1"-high internal hard disk drive; available from 40MB through 100MB.

Provides no-compromise hard disk performance which until now has never been seen on the A500.

Seeing is Believing

Take one for a Test "Drive" at your nearest GVP Dealer today!

Call for Special End-User Trade-Up Details!



Game Switch: Enables RAM while enabling full game compatibility. External SCSI Port: Allows up to 7 SCSI devices to be attached.

1"-High Factory-installed Hard Disk Drive: 40MB through 100MB

"Mini-Slot": For future expansion options.

GVP's Custom VLSI Chip

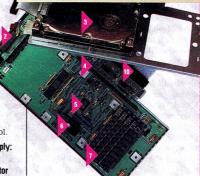
GVP's FAAASTROM SCSI Driver.

Internal RAM Expansion: Up to 8MB

Internal Fan: Keeps you running cool.

Dedicated Universal Input Power Supply: Included.

Reinforced 86-PIN Card Edge Connector





Educational pricing program now available.

Series II, FAASTROM and GVP are trademarks of Great Valley Products, Inc. Amiga and A500 are registered trademarks of Commodore-Amiga, Inc.

GREAT VALLEY PRODUCTS INC. 600 Clark Avenue, King of Prussia, PA 19406

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

Consumers Circle 24 on Reader Service card.



CHIEF CONCERNS

Why my job is so great.

I TALK TO a lot of readers, most often at shows or just on the phone. Sometimes, not always, I can tell they are excited. "Hey, I'm talking to the Editor of *AmigaWorld*." I know I am that way when I meet a celebrity, or maybe a successful person in a field I admire. It's special.

But I've got to admit something right now. I might as well, because you'd find out eventually anyway. I am nothing special. Ask anyone. I'm really more of the average Joe, and

usually just as happy to meet you as you may be to meet me.

I am, however, lucky. I've got the best job this side of Mississippi. And a few quick stories will tell you why.

Shortly after joining up, I heard that Arthur C. Clarke read Amiga-World, and sometimes wrote to us. So I waited, patiently, and finally a letter arrived from Sri Lanka. Whoa, Nellie! With a quick response or two, we suddenly had a stream of letters from the great science-fiction novelist, who penned his latest classic, The Ghost from the Grand Banks, after checking out the Mandelbrot Set on his A2000.

More recently I talked to Ernie Colon, who illustrates Mighty Mouse comic books, and is an energetic new Amiga fan. In fact, he plans to eventually do all his work on the Amiga, throwing pen and paper to the wind.

Thanks to AmigaWorld, I am now also friends with a professional bike racer, a breed I respect above almost any other. Former Olympian Norman Alvis is a big Amiga fan who, when not riding the Tour de France, likes

to play golf simulators. In fact, team sponsor Motorola even gave Norm a 68030/68882 to put his 500 into

high gear.

This celebrity/Amiga connection is pretty wild, but in some ways is less exciting than our contact with lesser-known readers. About a year ago, we put ads in the magazine asking for submissions for our Animation Video Volume II. Within weeks, boxes were filling up with disks and tapes, and Lou Wallace and Mare-Anne Jarvela loaded and viewed each and every one. After Lou came back from LA Videograms with a VHS dub, the whole staff sat down to view the tape and pick our contest winners.

This was impressive stuff! Just by asking readers to send in animations, we got true commercial-level results, not only in the quality of the animations, but in the gut-busting story lines as well. There is truly phenomenal talent in this market, and we at AmigaWorld are fortunate enough to

tap it.

Other interesting things come my way because of this job. For instance, a few months ago I got a letter from Marine CPL Jeff Birney, who was stationed in Saudi Arabia. We sent him off a bunch of issues he'd missed, and shortly thereafter I got a letter from him containing my own personalized Desert Shield/Desert Storm dog tags.

About a month later, I got a phone call from Birney from Saudi Arabia to tell me he'd painted "To Saddam. Subscription Enclosed. Doug Barney." on a 1000-pound bomb that was sent over during the fight.

We've got some pretty wild youngsters as well. Nearly two years ago at AmiEXPO in Santa Clara (three days after the San Francisco earthquake), I strolled over to the Go Amigo booth and eavesdropped on a father and son shopping for a hard drive. The kid seemed to recognize me, and we started talking, so I asked him what he did with his system. He said not much, a little genlocking, some 2-D animation, a little 3-D, you know. Maybe add some sound here and there.

Not much? This kid was in high school, and he was doing things that most computer users dream about. It

was exciting to meet him!

Only last week I got a letter from Moscow. Jury Vladimirov gets Amiga-World whenever he can, and uses his computer for video titling. A letter like that will make your day. Then, a few days later, I heard from a user in Lithuania. I've had similar mail from South Africa, the Middle East, Europe. Even Leominster, Massachusetts, for goodness sake.

So if you run into me, don't be too impressed, but stay in awe of people who really drive this market. Those

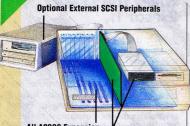
like you.



The Ultimate All-in-One Amiga® 2000 Add-on... 68030 POWER+16MB RAM+SCSI CONTROLLER

Replaces up to FOUR "normal" expansion boards!

Series II Now, a 22 or 33 Mhz 68030 accelerator board, up to 16MB of 32-bit wide RAM and a high-performance SCSI hard disk controller in a single A2000® "CPU slot" expansion board!



All A2000 Expansion Slots Free

GVP All-in-One Board +SCSI Drive Installed

Check out these features:

- √ 22Mhz or 33Mhz factory installed, surface mounted, 68030 CPU and 68882 FPU.
- V Up to 16MB of 32-bit wide memory expansion. 4MB minimum factory installed memory on 33Mhz version, 1MB minimum for 22Mhz.
- V GVP's new custom 32-bit wide, 1MB or 4MB, SIMM32™ memory modules offer flexible, easy-to-install memory expansion. 22Mhz model has 1MB factory installed memory, expandable to 13MB. 33Mhz model has 4MB factory installed memory, expandable to 16MB.
- V On-board high-performance "Series II" auto-booting SCSI controller with factory installed FAAASTROM SCSI driver and SCSI connectors for attaching both external and internal SCSI peripherals.
- ✓ Direct DMA access to the full 16MB range of 32-bit wide memory expansion by the on-board SCSI controller. Due to the A2000 bus architecture, this is ONLY possible when SCSI controller is placed directly on the 68030 CPU bus (as is

the case with the A3000!). Provides ultimate SCSI hard disk performance!

- ✓ GVP's legendary FAAASTROM SCSI driver supports virtually all SCSI devices currently on the market, including hard disk drives, CD-ROM drives, Magneto-Optical drives, removable media drives and tape drives.
- Switch to 68000 mode by simply clicking on our new "68000 Mode" Icon, or include our special "mode switching" utility in your startupsequence and select required mode each time system is rebooted, by holding down mouse buttons.
- Provides the ultimate expandability of your A2000 system. Plugs into the "CPU accelerator" slot, thereby leaving ALL FIVE A2000 expansion slots free for future expansion.

Internal SCSI **Built-in GVP Hard Drive** Series II DMA (3.5" available **SCSI Controller** up to 340MB!) Surfacemounted 68030 CPU and 68882 FPU | (22 or 33Mhz) for external **SCSI** peripherals Up to 12MB of 32-bit wide, User-installable 1MB (22Mhz) or SIMM32 Memory 4MB (33Mhz) Expansion Surface-mounted



32-bit wide

Memory

COMPARE:	A2000 +GVP All-in-One	Commodore A2500/30	Commodore A3000®
68030 CPU and 68882 FPU	Y	Y	Y
Maximum CPU clock speed available & shipping TODAY	33Mhz	25Mhz	25Mhz
Maximum 32-bit wide FAST memory on 68030 CPU board	16MB	4MB	16MB
Direct DMA access to more than 8MB of fast memory	Y	N	Y
DMA SCSI controller built-in on 68030 CPU board	Ý	N	Y
Number of open Amiga expansion slots with 68030 CPU, SCSI controller and more than 4MB fast memory installed	5	3	4
RAM upgrades through easy-to-install 32-bit wide SIMM memory modules	Y	N	N

Ask your dealer for the GVP A2000-COMBO 22 or 33



SIMM32 and GVP are trademarks of Great Valley Products, Inc. Amiga, A2000 and A3000 are registered trademarks of Commodore-Amiga, Inc. Video Toaster is a trademark of NewTek Inc.

GREAT VALLEY PRODUCTS INC. 600 Clark Avenue, King of Prussia, PA 19406

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

OVERSCAN

News, New Products and Networks

WORLD OF AMIGA FEELS PIER PRESSURE

NEW YORK, N.Y.—CDTV made a splash on Pier 91 in April. Commodore (RS #140) used the World of Amiga show to sell its first CD-based Amiga units to the eagerly awaiting public. The offices back in West Chester must have nearly emptied in order to man the booth with its multilayered demonstrations. President Jim Dionne, Nolan Bushnell (General Manager, Commodore International Consumer Products Interactive Division), and CDTV chief Gail Wellington headed the list of Commodore luminaries available for questioning. They even let CATS (Commodore Applications Technical Support) staffers out of the bag for a developers' conference, where CBM urged attendees to develop for the CD-ROM system.

CDTV shared the spotlight with a number of products, including *Digital Micronics*' (RS #101) 60 MHz graphics processors. The **DMI 020** offers the full 16-million color spectrum (\$1595, 24-bit, 1280 × 1024 resolution), while the **DMI 010** eightbit (\$835, 1024 × 800 resolution) version provides 256 active colors from a palette of 16 million. The

company also offers internal and external **20MB** Insite Floppy/Optical Drives that accept 3¹/₂-inch high-density floppy disks.

TTR Development's (RS #102) large booth drew large numbers. The firm's new Digital Audio Tape drive, the 1.3 Gigabyte DAT SCSI System is available in internal (\$1649.95) and external (\$1849.95) models. Both provide a pass-through kit, a 120-minute tape with 1300MB of storage, and claim a sustained data-transfer rate of 11MB per minute. TTR also showed its SCSI Streaming Tape System, which allows for 12- to 16-bit compression for even more storage room. Each kit (\$619.95 to \$899.95) comes with a tape unit, cartridge, software, cables, and a pass-through SCSI port for daisy-chaining external units.

Usually sedate show attendees suddenly became performers at *The Vivid Group's* (RS #103) booth, where **Mandala** was on display. People took turns making dance-like movements as they "played" instruments displayed on screen. Until Continued on 6, 12.

WHEN YOU LEASE EXPECT IT

With the formation of Commodore Leasing, a national program, CBM becomes one of the few personal-computer manufacturers to endorse a leasing plan. The new enterprise, implemented in conjunction with leasing giant Master Lease of Berwyn, Pennsylvania, enables customers to lease A500Ps (Professional) or any of the A2000- or A3000-series machines.

Ron Stanczak, CBM VP of Professional Sales, says that the program can help businesses stay competitive during an economic slowdown because no down payment is required and everything—equipment, software, and monthly maintenance—can be included in the lease. For details, call CBM at 215/431-9100 or Master Lease at 215/651-5000.

—BG

A NEW COAT OF PAINT

Ever so quietly, *Electronic Arts* (RS #118) has been working on a major upgrade of DeluxePaint. An early prerelease copy of **DeluxePaint IV** promises significant changes, including added support for 4096-color HAM (Hold-And-Modify) mode. To accommodate the new color options, the original palette requester has been discarded in favor of a Color Mixer that allows you to combine colors as if you were actually mixing paint. You can also create up to eight palettes having 32 colors each.

A new animation-control panel that you can toggle on and off gives you all the animation features of DeluxePaint III, plus the abilities to play a sequence backwards and to select the new Lightbox feature. Lightbox, which is similar to Disney Animation Studio's (Disney Software) onion-skin display, allows animators to see either the preceding or



DeluxePaint IV's new Color Mixer.

following frame while working on the current frame.

With Translucency mode, you define a color and intensity. Then, when you draw or paint on top of an existing image, that image emerges tinted, with its original colors altered to a third shade. One of the most impressive new features, Metamorph, allows you to create an animbrush (with a definable number of frames) from any two still brushes. Let's say you selected a brush of a beach ball and another of an airplane. Choose Metamorph, indicate 12 frames, and in just a few minutes, you will have an animbrush that changes from the ball to the plane in 12 frames.

Stenciling has been improved, and the Gradient Fill tool now offers five types of gradients. Also, you can now load 256-color IFF-ILBM images. Not only are there new menus and requesters, but the whole interface now has an embossed 3-D look.DPaint IV looks impressive. The scheduled retail price is \$149.95, and EA will offer a \$50 upgrade deal for current owners. If the program is released on schedule, you should see a review in one of our fall issues.

—LRW

For information about the vendors of products mentioned, see "Manufacturers'/Distributors' Addresses" list on p. 96.

If you've been looking for a fast, easy-to-use, high quality structured drawing program, look no further. Now you can unleash the artist within with DesignWorks, the structured drawing program de-

Creativity In The

DesignWorks is built for speed. No longer are slow and cumbersome programs needed to achieve professional results. DesignWorks is the ultimate in simplicity, with a responsive interface and design set.

The Highest Form Of Self-Expression Is Now The Least Expensive

than you would expect from a structured drawing program with this much speed and flexibility. With a Bezier smoothing algorithm, unlimited numbers of drawing layers, flexible text handling system and user-definable multi-color patterns, you don't need to be a professional engineer or CAD programmer to achieve quality results. And high resolution printing means you get near-PostScript quality output from

Stop by your local Amiga dealer to see DesignWorks in action.

Variable line thickness

Customizable multi-color fill patterns Multiple drawing layers

AREXX port

Macros, when used with AREXX Magnified and reduced views

Drawing up to 100 inches by 100 inches in size Up to 10 drawings open at the same time

Inch or centimeter rulers

Near-PostScript quality printing on dot-matrix printers, full 4096 color printing Complete printer control, including sideways

printing Fully customizable

Full support for Kickstart 2.0

Requires Kickstart 1.2 or later and 512K of memory Suggested retail price: \$125.00



206 Wild Basin Road, Suite 109 Austin, Texas 78746 (512) 328-6650

Amiga* is a registered trademark of Commodore Business Machines, Inc DesignWorks™ is a trademark of New Horizons Software, Inc. Circle 36 on Reader Service card.

AMIGAS'S NAB WAR CRY: "WE DO IT AS WELL FOR LESS!"

LAS VEGAS, NEV.—The "dinosaurs" are starting to worry. At the National Association of Broadcasters' (NAB) 1991 convention, general-purpose personal computers appeared to outnumber the dedicated systems for the first time. Prominent among the PCs, the multitalented, affordable Amiga made a strong case for the fact that single-purpose, extremely expensive systems are becoming a thing of the past.

While the Amiga was spotted in several of the major players' booths, New Tek (RS#122) and its Video Toaster were the focus of most of the Amiga attention. You could not enter the West Hall exhibit area without noticing New-Tek's booth, which was positioned right in front of the door. In fact, you could not get in without maneuvering around the crowd listening to the almost constant Toaster demo. Making their debut at the show were a new screen of effects and the stand-alone Toaster system (\$3995)—an Amiga 2000 with a 52MB hard drive, 5MB of RAM, a Video Toaster nameplate, and, of course, a Toaster.

Representatives were also touting the number of Toaster-compatible products (as many as 35) on the way from third-party developers. Among the 19 officially announced were: *Diaquest's* (RS #123) **DQ-TACO Toaster Animation Controller** (\$1795); *Nucleus Electronics'* (RS #124) single-frame

controller (\$425); Vision Quest's (RS #125) Vision 1 Time-Base Corrector (\$1995); Computer System Associates' (RS#126) Toaster Accelerator Card (an '040 with 4-6MB of 32-bit RAM); Kara Computer Graphics' (RS #127) Toaster ChromaFonts; and Shereff Systems' (RS #128) Cinnamon Toast Fonts.

Down the aisle, *Digital Creations* (RS #129) threw in the **Kitchen Sync** (\$1895), an internal dual-channel TBC with a built-in sync generator and processor/amplifier features. S-Video outputs are optional.

In the main hall, Midwest Communications' (RS #130) booth had knots of attendees around its demos of the Toaster and the Digital Processing Systems' (RS #131) Personal TBC (\$995). The single-channel TBC fits into an IBM PC slot and offers S-Video in (but not out) and genlocking capabilities.

RGB Computer & Video's (RS #132) AmiLink system was in two places simultaneously—at both RGB's booth and Panasonic's (RS #133). A complete editing system, AmiLink replaces dedicated components with a single, integrated program. The optional VT software module pulls Toaster control under the same point-and-click interface.

If all the seats at the RGB booth were filled, showgoers could see AmiLink/VT, the Toaster, the Amiga, and Panasonic's AG-7750 (\$6500) and AG-7650

Continued on p. 12.



The farmer contemplates a milking machine.

HOLY COW. . .A WINNER AT LAST!

A simple tale of farmer and cow suddenly goes haywire, plunging us into pastoral pandemonium—that's what won the Grand Prize in *Amiga-World*'s Animation Video Contest II.

Congratulations go to **Brian Allgeier** of Roswell, Georgia, for "Don't Moo Over Spilt Milk," featuring a dull-witted farmer and his tragic cow who mix it up with a crazed milking machine. Allgeier started out last summer using DeluxePaint III (Electronic Arts) on an A500 with 1MB of RAM, but shifted to an A2500 with 7MB of RAM when he became a student at Savannah College of Art and Design in the fall. Allgeier not only won an A3000 and a Video Toaster (NewTek), but also an A in his computer project. Interestingly, Brian's teacher, **Edward Kinney**, also entered the contest and won a slot on the video.

Joining Brian in the winner's circle are:

Best 3-D: 1st Prize—**Dan Seely** for "Potshots," which won him GVP's A2000-030.

Continued on p. 12.



ON-LINE SCAN By Tim Walsh

The hours I spend in the name of journalism scanning the networks for the best in freely distributable Amiga software make for great sport. The fun factor notwithstanding, it is my responsibility to pass along information on the choice picks I find. Although there has been no recent shortage of frilly fonts to fiddle with and angry aliens to annihilate, this month I feel compelled to set aside discussion of software in favor of a more important issue.

A heavily downloaded text file called MODEMTAX?.LZH (Library 1, File #11050 in the Amiga area on GEnie) tells, in somewhat awkward detail, how computer telecommunications may soon fall prey to government officials in Washington. According to this file, an FCC proposal now under consideration would require modem users to pay extra charges for use of the public telephone network that carries their data. It seems that if this goes through, modems might become a source of additional revenue for a certain telephone company struggling to increase income lost to deregulation.

Most of us remember when monolithic Ma Bell cast a shadow larger than any other utility company. Thanks to the efforts of consumer groups, longstanding laws were changed during the 1970s and 80s, and the massive shadow began to ebb. People started buying their own telephones, rather than paying exorbitant lease fees, and competing services sprang up across the land. As a nation, we issued a collective sigh of relief.

Now we hear rumors of that shadow beginning to form again. The GEnie file states that if the special-interest lobbyists have their way, we will see increases as high as \$6 per hour for use of the public telephone lines. Financial pressures would then probably make many Amiga users abandon the net-

works, thereby losing valuable access to the freely distributable technical and creative files that these channels make available.

GEnie subscribers can learn more details by downloading the message. Those of you without GEnie accounts can still join the letter-writing campaign. Send your comments to these addresses taken from the MO-DEMTAX?.LZH file:

Chairman of the FCC 1919 M St., N.W. Washington, D.C. 20554

Chairman, Senate Communications Subcommittee SH-227 Hart Building Washington, D.C. 20510

I am certain most Amiga users will agree that regulations made in the interest of telphone company profits are unwanted and unnecessary.

If you have an idea... YOU NEED SCALA

A Professional Presentation Package for the Amiga



How you present your ideas is as important as the idea itself. With a tool like SCALA your ideas will have the advantage they deserve.

SCALA provides all the tools you need for professional presentations:

Backgrounds. Scala includes FIFTY-NINE professionally created backdrop images and textures, such as "Stone", "Marble", "Fabric", etc. THIRTY-NINE specially selected color palettes are included, allowing you to create unique and eye-catching background tapestries, adding character to your presentations. Backgrounds are stored



in IFF picture format (HAM also supported), allowing custom backgrounds to be easily created and added.

Symbols. Scala includes many useful presentation symbols such as, male, female, arrows, vehicles, etc. Symbols are stored as IFF brushes, allowing custom symbols (or other objects) to be easily created and added.

Typography. Scala includes SEVEN-TEEN fonts, each of which is available in many different sizes and weights



Special effects such as tilting, underline, drop shadow, 3D and color can be applied to any individual letter, word or line. The video enthusiast will find several typefaces especially suitable for video titling purposes.

Transitions. Scala offers more than SEVENTY special effects transitions for control of transitions between pages of a presentation and how and when text, symbols or objects appear on a page. These transitions allow you to soften or accentuate changes and liven up your presentations. The speed of any transition and display times can be fully controlled.



Animiations. Scala is able to load and play back animations at any point within a presentation. Text can be added and super-imposed on an animation while it is being played back.

Output. Transferring output to different media is no problem with a duo like Scala and the Amiga. Using wellknown Amiga tools, presentations can be genlocked, recorded on video tape, printed on polaroids, etc. Scala includes ScalePrint which can print out a complete presentation or just a cue for your speech. PostScript printers are supported.

Other Features. Page layout and attributes can be saved and re-used later to ensure a consistent appearance within a presentation. ASCII files can be loaded and formatted onto these pre-defined layouts. Any object or part of a screen can be defined as a "button", allowing "run-time" selectable flow of presentations by the simple click of a mouse button. Mouse buttons act as a "remote control", allowing forward and backward control of the presentation or overriding display times.



Easy-to-use

Scala represents a new generation in Amiga software due to its excellent user-interface and smooth performance. All Scala's features are accessible through three, clear and easy-to-use menus labeled in plain English. Scala is shipped with a comprehensive manual and EIGHT DISKS! MINIMUM CONFIG-URATION. Scala requires Kickstart V1.3 (or later), at least 1MB of memory and a hard disk. Separate versions for PAL Vour and NTSC.

ideas deserve SCALA!





Scala and the ! symbol are registered trademarks of Digital Vision Ltd, Norway. Amiga is a trademark of Commodore-Amiga, Inc. PostScript is a trademark of Adobe Inc. GVP is a trademark of Great Valley Products, Inc.

GREAT VALLEY PRODUCTS INC. 600 Clark Ave., King of Prussia, PA 19406

For more information, or for your nearest GVP dealer, call today. Dealer inquiries welcome. Tel. (215) 337-8770 • FAX (215) 337-9922

World of Amiga. . . from p. 8.

recently, The Vivid Group sold the product only as part of the Mandala Virtual Reality System— an entire setup that the company installs. The software-only version, which lets you create interactive environments, is now available for \$495.

Beta Unlimited (RS #104) generated interest for its AudioLink sound sampler. For \$1295, you get 16 voices, 16 multiple out ports, 1MB of RAM (with room for 16MB), and space for a direct-to-disk transfer card. AudioLink's software lets you generate 16-bit instruments and features real-time playback, cross-fading, multiple save formats, and variable left and right gain.

Great Valley Products (RS #105) featured its Impact Series II memory/hard-drive option expansion cards, magneto-optical drive systems, and streaming-tape back-up systems. GVP's accelerator line is now led by a 50-MHz 68030 CPU and 68882 FPU with 4MB of 32-bit wide RAM installed, although a soon-to-be-released 68040 board will no doubt quickly be joining the competition for the lead.

Octree Software (RS #106) announced Callgari Broadcast 2.0 (\$3495), now with a real-time, second-generation, virtual-reality interface. Its new modeling capabilities include single-point editing, mirroring, and slice and sweep operator functions. Broadcast also offers interactive, spline-based, real-time animation and frame-buffer compatibility.

The release of the **Grand Slam** hard-disk controller was the focus of talk at the *Interactive Video Systems* (RS #107) booth. The new board is a up-scale version of the Trumpcard Professional, offering an on-board parallel port and sockets for 8MB of RAM.

The CDx-650 CD-ROM System, a 650MB compact-disc drive that comes with a disc containing over 500MB of PD software, drew its own crowd in the Xetec (RS #108) booth. Xetec's MOx-600 System was also a draw among those needing high-capacity rewritable storage. This magneto-optical drive system makes use of a 600MB removable cartridge. Both products require SCSI interfaces, and Xetec gives you a price break on a FastTrack DMSx SCSI adapter when you buy an optical system.

Concise Logic (RS #109) announced Scannery 1.1 (\$250), a software package for use with the HP ScanJet and ScanJet Plus scanners. The latest version features 256 gray-scale images; horizontal and vertical resolutions of 12 to 1500 dots per inch; horizontal and vertical scaling from 1 to

50 in increments of 1/100 of a unit; 255 brightness settings; 255 contrast settings; four dither patterns; image inversion; automatic background control in black-and-white mode; and expanded file-format support.

That covers the highlights on the hardware and productivity side. Now over to Peter Olafson for a report on the entertainment products...

-JJ

Unlike the AmiExpo show held just three weeks earlier, the April World of Amiga had lots to offer entertainment enthusiasts. The majority of the games on display were in CDTV format, and many of these titles were a mystery. Literally.

They included **The Case of the Cautious Condor**, a 1937 whodunit from *Tiger Media* (RS #110); Many Roads to Murder and Murder, Anyone?, both from *CDTV Publishing* (RS #111); Psycho Killer, from On-Line (RS #112); and Sherlock Holmes, Consulting Detective, from *Icom Simulations*, (RS #113). I suppose you could even count among the mysteries *Edge Interactive Multimedia*'s (RS #114) Snoopy: The Case of the Missing Blanket, billed as an "interactive cartoon."

On the more traditional floppy-disk media, *Electronic Arts* (RS #118) presented Amiga versions of several popular titles: PGA Tour Golf, Centurion: Defender of Rome, Chuck Yeager's Advanced Flight Trainer 2.0, Ski or Die, and Bard's Tale III: The Thief of Fate—a giant role-playing game with 80 dungeon levels and automapping. Most were to be priced at \$49.95.

Slerra (RS # 119) showed Hero's Quest II...
er, let's make that Quest for Glory II: Trial By
Flre. (Sierra changed the name of the series to
avoid confusion with a Milton Bradley board
game.) Glory is an Arabian-themed sequel to the
earlier Hero's Quest, and covers eight disks! A
Sierra representative mentioned that a version of
the original King's Quest, with enhanced graphics
and sound. is in the works.

From Sierra's *Dynamix* division (RS #120) came a pretty Amiga version of the futuristic tank game Stellar 7. *Spectrum Holobyte* (RS # 121) demonstrated a beta version of its new Vietnam-era flight simulator, Flight of the Intruder. Based on Stephen Coonts' best-selling novel, it is set in 1972, and permits control of up to eight planes (four A-6 Intruders and four F-4 Phantoms) in a single mission.

-PO



OVERHEARD

NewTek's Video Toaster, that so-called "exciting and complex piece of equipment," now has the support of a dedicated users' group in the Los Angeles area. For further information on the group and its activities, contact event organizer Lee Stanahan by phone or fax at 818/505-1464, or via electronic mail: GEnie—K.Nelson15; Compu-Serve—72760,2373; PeopleLink—BreadBox-Lee.

Holy Cow. . . from p. 10.

2nd Prize—**Bert Huntsinger**, who garnered Imagine (Impulse) for "Digital Frankenstein."

Best 2-D: 1st Prize—**Michael Salva**, who picked up DCTV (Digital Creations) and Sculpt 4D (Byte by Byte) for "Amoeba On The Floor."

2nd Prize—**Robert Jackson**, whose "Failure" won him PageRender3D and PageFlipper Plus F/ X 2.0, both from Mindware.

Best Story: 1st Prize—Chuck and Chris Waite, who earned a SuperGen 2000S genlock (Digital Creations) for "Looney."

2nd Prize—**Brad Schenck** for "Off the Record," which netted him a copy of 3D Professional (Progressive Peripherals).

Of the 600-odd entries (many times more than the first contest), 42 were accepted for this 90-minute Animation Video tape. According to contest editors Lou Wallace and Mare-Anne Jarvela, the submissions for our Animation Video Contest II were longer, on average, than those of last year's contest, which resulted in a 48-minute tape with 60 animations.

They explained that this year's emphasis on a story line—in addition to good technique—accounted for the increased length of the submissions. *AmigaWorld* staffers judged finalists using a two-part scoring system to evaluate both technique and story line.

After we give Wallace and Jarvela some time to recuperate, stay tuned for AV Contest III!

-JJ

NAB War Cry. . . from p. 10.

(\$4500) S-VHS decks working together to outshine the IBM and Mac demonstrations that rounded out Panasonic's desktop-video display.

Also doubling its coverage, Octree's (RS #134) Caligari Broadcast 2.0 (\$3495) showed off its new modelling capabilites with a Targa board in the Truevision (RS#135) booth and with the PACE single-frame controller (\$3195) in the Videomedia (RS#136) booth.

While somewhat hidden in Sony's (RS

#137) massive booth, the Amiga was there, too. Tucked into the Hi-8 editing suite with the **EVO-9700** (\$7600), it was hooked to *VidTech's* **Scanlock** genlock (\$995) and running a titling program.

Perhaps the largest Amiga exhibit was the one in which it was least evident. The video wall from *Forum Communications* (RS #138), which uses Amigas to drive multiple-source video systems, grabbed everyone's attention on the way to seminars and the press room.

NAB '91 legitimized the Amiga in the

broadcast community (I could not even have lunch without overhearing Amiga/ Toaster conversations). Even the skeptics had to admit that last year's "flash in the pan" has spread like wild fire, and the dinosaurs are getting burned.

—LL

Overscan is compiled by Barbara Gefvert, Janine Jackson, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Eim St., Peterborough, NH 03458.

If you wish to enhance your Amiga 2000° with MORE MEMORY, A HARD DRIVE, Or BOTH wish no more—GVP has the solution for you.

Series II Choose GVP's Series II RAM Expansion Board, SCSI Hard Drive Controller or SCSI+RAM Hard Disk Card. Realize the potential of configuring your perfect solution without any need for compromise!

RAM Expansion

SII A2000-RAM8/2: The smallest and most compact 8MB RAM expansion board for the A2000!

- √ 2MB of factory-installed RAM, expandable to 8MB.
- ✓ All memory fully Auto-Configured. ✓ Also supports 6MB configuration for maximum memory utilization for Commodore's A2088/2286 "bridgeboard" users.
- √ Uses easy-to-install, industry standard, SIMM memory modules. No more bent pins or incorrectly inserted DRAM chips!
- ✓ GVP's state-of-the-art VLSI technology has reduced an 8MB RAM expansion board to a "half-card"! This translates into a lower parts count and also means the highest possible reliability and life expectancy.

SCSI Hard Disk Controller

SII A2000 SCSI "Hard-Disk-Card": Specifically designed for those users who don't need memory expansion but still need maximum hard disk performance at a budget price.

- Incredible SCSI hard disk performance achieved through GVP's innovative new custom chip design.
- √ Supports virtually any SCSI device including: CD ROMs, tape drives, Bernoulli drives, removable hard drives . .
- √ Fully implements Commodore's Rigid Disk Block (RDB) standard as well as the new DIRECT SCSI interface standard.
- Allows direct AUTOBOOT from Fast File System Partition.
- Simplest and easiest SCSI installation in the industry.

SCSI Hard Disk+RAM Expansion

SII A2000-SCSI Hard Disk+RAM-Card: State-of-the-Art integration packs GVP's high performance SCSI controller, 8MB FAST RAM expansion and a 3.5" hard drive drive INTO A SINGLE A2000 EXPANSION SLOT!

- √ GVP's new custom chip design provides DMA performance and unique direct dual port memory access to FAST RAM, eliminating typical DMA side effects under heavy graphics load.
- ✓ Easy-to-install SIMM memory modules allow flexible memory configurations for Zero through 8MB. Supports 6MB FAST RAM configuration for BridgeBoard users.
- ✓ Supports virtually any SCSI device. ✓ Allows direct AUTOBOOT from Fast
- File System Partition. Simplest and easiest SCSI installation in the industry.



GVP Custom

VLSI Chip Up to 8MB FAST RAM Expansion

Series II, and GVP are trademarks of Great Valley Products Inc. Amiga and Amiga 2000 are registered trademarks of Commodore-Amiga, Inc.

600 Clark Avenue, King of Prussia, PA 19406

For more information, or for nearest dealer, call today. Dealer inquiries welcome.

Tel. (215) 337-8770 • FAX (215) 337-9922

REVIEWS

ART DEPARTMENT PROFESSIONAL

When your pictures look good, you look good.

By Mitch Wells

WITHIN THE LAST year, three product announcements generated a lot of excitement within the Amiga community. We finally got the Video Toaster, a major stride in professional desktop video production. Next came DCTV, which admirably meets its goals as an affordable professional full-color paint system. Now we can welcome with open arms ASDG's Art Department Professional (AD Pro), an image-processing package geared to those who use the Amiga for output to video, film recorders, PostScript printers, and high-resolution/fullcolor graphics boards.

AD Pro's strong points are its image conversion between formats, resolutions, and number of bit-planes; image scaling; dithering; image compositing; image cropping; and anti-aliasing and display technologies. In addition, its modular design includes the use of separate image-data loaders, image-data savers, image-processing functions (called operators), and flexible ARexx implementation.

THE IMAGE AMBASSADOR

AD Pro's most striking feature is the way it handles bitmaps. It converts all bit-maps—regardless of resolution or number of colors—into 24-bit color data (if memory allows), or eight-bit gray-scale data if only equal values of RGB are present in a picture. Because all color data is in 24-bit format (providing up to 16.7 million colors), AD Pro can composite or manipulate any number of pictures with any

color/palette structure. You can then rerender for display within various Amiga and non-Amiga resolution/ color combinations with amazing

Further, AD Pro's dithering technology allows for pictures having a limited number of colors in their palettes to appear as if they have hundreds of colors. This is possible because—although Amiga displays contain only 15 discreet values of red, green, and blue—AD Pro calculates all changes to a picture with 255 steps of these colors. This gives many more color choices for dithering, palette matching, or anti-aliasing.

AD Pro can also directly load 24-bit images for manipulation and conversion. Full-color formats that AD Pro will load include IFF, up to 24 bits of color; Digi-View (NewTek), 21 bits; DeluxePaint II Enhanced (Electronic Arts), 256 colors, an IBM format; GIF, with up to 256 colors; Impulse RGB8, used by Turbo Silver (Impulse) to store 24 bits of color; PCX, another IBM 256-color format; HAM-E (BlackBelt Systems); MacPaint; Sculpt (Byte by Byte), a 24-bit color format used by Sculpt-Animate 4D; Mimetics FrameBuffer; and 3D Professional (Progressive Peripherals).

Separate loader programs available from ASDG will handle TIFF, Targa, and Caligari Rendition (Octree Software), and others will undoubtedly become available as the need arises. AD Pro even includes a loader to create graduated backgrounds in 24 bits of color! Images loaded in 24 bits can be manipulated and then either rendered and saved in standard Amiga formats or converted into other 24-bit formats for display on other systems or graphic boards.

Because AD Pro is a modular system, image loaders, savers, and manipulation operators are all separate programs. It comes with the following

format savers: IFF (including up to 24 bits of color), DeluxePaint II Enhanced, GIF, Impulse's Firecracker 24, PCX, Sculpt, Mimetics' Frame-Buffer, Progressive Peripherals' FrameGrabber, and PostScript. The last four are of great importance when considering AD Pro's flexibility.

The FrameBuffer, Firecracker 24, and FrameGrabber savers are not file savers per se; instead they communicate directly with hardware attached to or installed inside A2000s, A2500s, or A3000s. When saving a file, these modules display on the appropriate hardware device in 24 bits of color. Consequently, AD Pro is capable of being the central controller program in an environment that might include an Amiga with a full-color/high-resolution graphics card. It could also include an Amiga with other hardware/ software combinations, such as a single-frame video controller (using MicroIllusion's Transport Controller software) and capable VTR, or a high-resolution film recorder.

AD Pro's PostScript saver offers additional flexibility in that it can convert and print an image loaded into AD Pro on a PostScript-compatible printer, or convert that image into a PostScript file. AD Pro can provide three- and four-color separations of any image, while allowing you to control such things as under-color removal, CMYK screen angles and densities, Gray Component Replacement, orientation, offset, crop and registration marks, bleeds, and so on. You can then save the color-separated images with the PostScript saver. This provides you with camera-ready artwork to be output from a PostScript printer or sent to a service bureau.

THE GREAT MANIPULATOR

AD Pro's image-manipulation operators convert color images to gray scale, and gray scale to color, so you

For information about the vendors of products reviewed, see "Manufacturers'/Distributors' Addresses" list on p. 96.



Is it or isn't it composite? Only the artist will know for sure.

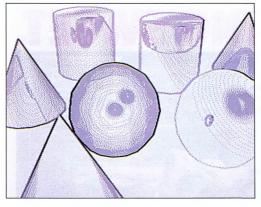
can combine them with other color images using AD Pro's compositing tools. In addition to image cropping, AD Pro converts images to line art (using an amazing edge-detection algorithm) or to negatives, removes isolated pixels (to clean up images and scans), and performs image scaling (again using a digital-scaling algorithm so images don't look "stairstepped"). It also performs vertical and horizontal flipping, Blur, Tile, and Noise Filter. Other standard image-manipulation features include control over brightness, contrast, and amounts of red, green, and blue color in any given image.

AD Pro's palette-editing tools are also flexible: You can limit the number of colors used on any given image, determine where that range of colors falls in any given palette, and match palettes between images. AD Pro also supports all Amiga display formats up to 64 colors, plus HAM, AHAM, and ARES (high-resolution,

4096-color images).

As mentioned above, AD Pro's image-compositing tools are unique and powerful. You can load an image in any color/palette combination and then place it behind or in front of another image, or mix it (using variable transparency) with any number of other images. You can specify transparent colors and image offset (position). The image can then be rendered to any displayable Amiga image format, and with AD Pro's dithering technology, composited rendered images look fantastic.

Anything that AD Pro can do—and some things that it cannot easily do by itself—can be addressed through ARexx. The documentation also includes suggestions for such things as approximating charcoal drawings and creating solarizations, drop shadows, and even an embossed look from a color or gray-scale image. I have found AD Pro invaluable in producing anti-aliased reductions of large, two- or four-color high-resolution



Approximating charcoal drawings.

screens, thus creating video-titling screens that rival any anti-aliased character generator available.

Using fonts from such packages as AROCK Software's Professional Font Collection or Brown-Wagh's Video Font Collection, I created titling screens using large font sizes and then simply reduced them in eight or 16 colors with AD Pro-all the while maintaining the high-resolution screen format. Although such screens undergo considerable scaling, they still end up looking much better than screens created with fonts that were about the size of the larger scaled fonts. Unlike scaling brushes with DeluxePaint III, you can use AD Pro to add colors and dithering as needed to anti-alias the screens, producing much better results than you can achieve with DPaint alone.

There is no way I can tell you all the things that ASDG's Art Department Professional can do! What I can tell you is that its documentation is thorough, it retails at \$240, the program is not copy-protected, it is easy to install on a hard drive, and it requires 3MB of RAM, although ASDG recommends more. This is a good program.

LANDSCAPE GENERATORS:

SCENE GENERATOR

TERRAIN

DIGITAL LANDSCAPE

VISTA

VISTA PRO

"O brave new world,

That hath such people in't!"

By Harv Laser

MAYBE YOU'D LIKE to take an instructive look around on top of old Smokey all covered with snow...or perhaps you simply want to gyre and gimble in the wabe through some abstract fantasy land of your own creation...or, more mundanely, you have

to create a plan to pave paradise and put up a parking lot for your employers. What you need in all cases-besides your Amiga—is a "landscapegenerating" package.

We will examine five such programs designed to let you create and render landscapes. (By "landscapes" I mean pictures containing mountains, hills, valleys, bodies of water, and other natural and topographical features.)

Landscape-generating software for the Amiga comes in three different flavors. Some can create landscapes

based only on internal fractal generation from random number "seeds." Others can accept real-world landscape data (national parks, historical sites, cities, and so forth) and thus generate pictures of actual places. Finally, some programs can do both.

None of these programs have the immediate capability to render cities, buildings, houses, bridges, amusement parks, football stadiums, or people in the landscape. Those that accept externally created elevation maps and such, however, do have the potential to render man-made struc-



In Scene Generator, you can harvest landscapes by planting seeds.

tures, if those structures are part of the imported data file.

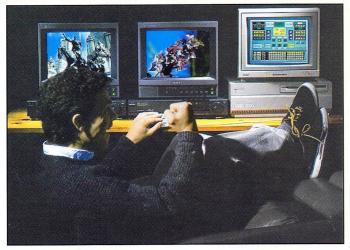
The Fantasy Land Creators SCENE GENERATOR

Although Scene Generator (\$49.95) from Natural Graphics lacks what one might call the "power features" and flexibility found in some other titles reviewed here, it is a totally charming and friendly program. It is also, perhaps, the best choice for someone who wants merely to create pretty, "natural-looking" landscape pictures quickly and with the least amount of fuss. With its low price tag, it's a good

Scene Generator accepts no external data files. (Editor's note: We have learned that Scene Generator version 2.11 should be available by the time this issue hits the newsstands. According to Natural Graphics, some substantial changes have been made, such as adjustable camera viewpoint and direction, key-frame animation interface, the ability to load and render real-world USGS digital elevation maps, 24-bit color output support, direct support for DCTV with built-in conversion and display features, and support for hires mode.)

The program creates fractal landscapes based on 65,536 different "seed" numbers. You pick the number, or let the program pick one at random, and then use the fast preview mode to see your little world paint to the screen in a couple of seconds. Don't like it? Try another seed number. Using hot-keys makes this a very quick process, but you can use the mouse and menus, as well.

Once you have a scene you like, you can customize it. Land height, water level, snow level, clouds, water turbulence, 32-color range controls, "sun" placement (at nine fixed coordinates), and a few other variables are at your disposal. Although Scene >



With AmiLink/CI controlling your editing suite, there's only one more editing device you'll ever need.

Just a few mouse clicks and you're editing with AmiLink/CI, the new computer-based edit controller from RGB. AmiLink's intuitive, graphical software interface is a pure pleasure to use. It leaves the artist in you free to create!

AmiLink puts you right in the middle of the hot desktop video arena. It multitasks with your favorite desktop video software applications, and it controls most traditional devices too (Video Toaster upgrade available soon).

It's AmiLink's power that makes editing easy. With features that let you do insert or assemble editing, auto assembly from a list, park and perform or open-ended editing, edit point trimming, complete 999-event edit decision list management, and multiple list saves to disk, your pace will be fast and furious. But you remain calm and relaxed because now your computer does the work.

So you see, with all this power and simplicity, the only thing left to buy is the easy chair.

Call now for info: 1-800-535-7876.

AmiLink is compatible with all 5-pin or control-L and control-M VCRs. Multiple platforms supported. All products mentioned are trademarks of their respective companies.



Makers of professional computer-based edit controllers for over 3 years



Generator has fewer controls than some of the other programs, there are still literally millions of possible combinations through which you can generate an endless supply of landscape pictures.

Scene Generator renders only in 32-color low resolution, with or without interlace, and saves pictures with two levels of overscan or none. There are no animation capabilities, but it can dump the displayed picture to your printer. The program saves all its internal settings with the IFF picture itself. If you create a scene you

particularly like, simply load your saved IFF back in, and it's as if the program had just rendered it—with all the settings used to create that picture intact. The latest version (2.11) adds an "Xtra High Detail" mode (at the cost of rendering speed), bringing to four the number of modes offered.

Whether you simply like to make pleasing pastoral pictures to admire, or want to create interesting backdrops for montages or animations, Scene Generator is a perfect entrylevel program with no real flaws or problems.



Terrain offers the possibility of locals woven from geometric fancy.

This Is Your Amiga on HAM...

This Is Your Amiga



MACRO PAINT... ...any Questions? 4096 COLORS IN HI-RES!

ONLY MACRO PAINT makes it possible! On any Amiga, it manipulates and displays all standard IFF images. And MACRO PAINT saves to 24bit

RGB and Dynamic Hi-Res. All without any add-on hardware. A bi-directional AREXX port links you to your presentation graphics or scanning software, and lets you add your own drawing tools. Contact Lake Forest Logic, Inc. today at

28101 Ballard Rd., Lake Forest, IL 60045 • (708) 816-6666 or fax: (708) 680-0832 MACRO PAINT BROURES ONE MEGABYTE MEINIMUM MEMORY, TWO TO THEE MEGABYTE ARE RECOMMENDED.

TERRAIN

The goal of Terrain (\$99) from *Impulse* is to generate scenic objects, such as mountains, valleys, and water waves, for import into Impulse's Turbo Silver ray-tracing software. Terrain is actually an outboard accessory to Turbo Silver that can—to a limited extent—also create free-standing IFF pictures. With some exceptions, Terrain's output can also be used in Impulse's newer Imagine program and, with 3-D object-conversion software, in renderers sold by other companies, as well.

You cannot feed Terrain data that's generated externally. Using its controls, and armed with some realworld geographical maps and zero elevation data, however, you can approximate a real location by tapping the program's power and flexibility.

Terrain opens a hi-res screen and sports a few menu selections and a strip of gadgets down the right side of its window. Select New and specify how big a grid you want to work with. The default size is 1000-by-1000 units, but you can go higher or lower depending on the amount of memory you have.

Now picture in your mind this grid, laid out and floating in space in front of you, like a malleable wire or stringmesh net. Then imagine walking under your grid, grabbing parts of it and pulling them down to create deep valleys or river beds. Walk along its topside and pull and twist other parts of it up to create mountains and hills.

The program accomplishes these feats with 2-D representations of 3-D axes. Place an axis on the grid; size, rotate, or move it around to your liking; and then add more. As long as you are aware that every axis you add represents another poke or pull at the virtual wire-mesh grid you started

Continued on p. 62.



Create your production by simply dragging out segments on ShowMaker's unique time-line interface. ShowMaker automatically loads files and cues external devices without interrupting the playback.*



Integrate and sequence video easily through ShowMaker's control of genlocks, video disc players, and VCRs. ShowMaker can even synchronize your production to an external time code through SMPTE/MTC support.



Add titles to your production easily with ShowMaker's built-in video titler and its collection of high quality fonts. You can even run titles on top of Amiga animations and graphics, and overlay the result on video.*



Sequence your computer animation and music (MIDI & SMUS) right in the production. ShowMaker's Auto-Sync* technology makes it easy to keep your animations and graphics in sync with the music.



If you have a Video Toaster, you need ShowMaker to bring out its full potential. ShowMaker lets you easily control the Toaster and integrate its effects into full productions.



Hit play and ShowMaker will play back your production in real time, automatically synchronizing video, animation, soundtrack, and titling. Then record your production to videotape for a first generation Master Tape!

Only One Package Does All This, ShowMaker.

Business, Education, Presentation.

Whatever your message, bring it to life with ShowMaker. Combine graphics, animation, video, sound, and even animated titles to make your own video productions. Or live multimedia presentations. So whether you're creating the next Hollywood blockbuster or a sales or training tape, ShowMaker gives you the tools to make it happen.

ShowMaker's unique time-line interface and advanced features make video production easy. Intelligent autoloading* of animations means your productions are no longer limited by RAM. And our Auto-Sync* technology ensures your animations and graphics stay in sync with your music even if you change the tempo.

Take advantage of dozens of built-in wipes, reveals, and dissolves to add that finishing touch.

ShowMaker controls the Video Toaster, genlocks, laser disc players, VCRs, and more, providing you with an easy to use, consistent interface. And ShowMaker uses an advanced modular driver design so you don't have to update the program to add support for new devices as they become available.

You'll also find ShowMaker's Cue Sheet and Storyboard features help you visualize and fine tune your productions.

So what are you waiting for? Join the video revolution. See your dealer or call us at 1-416-602-4000.

SHOWMAKER

THE COMPLETE DESKTOP VIDEO

SOLUTION

SHOWMAKER

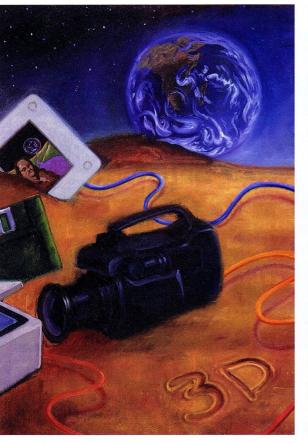
GOLD DISK

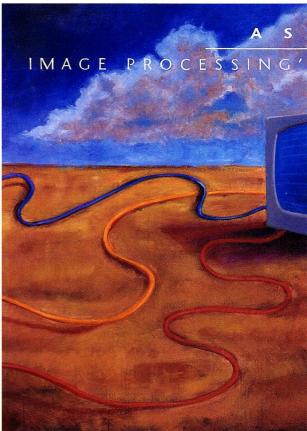
P.O. Box 789, Streetsville Mississauga, Ontario Canada, L5M 2C2 (416) 602-4000

ShowMaker is a trademark of Gold Disk Inc.
All products mentioned are trademarks of their respective owners. Additional hardware required

Additional hardware required separated by Professional Page 2.0

Circle 19 on Reader Service Card.





WHY WE INSIST ON VIEWING OURSELVES



Some may say our perception is a bit bold. But for Amiga users, it perfectly describes where we fit in the image processing world. Directly in the center ... joining input, processing and output.

SOURCES...

CONCEPT...

Our 24-bit image processing software, *Art Department Professional (ADPro)*, gives you the power to import from video digitizers and color scanners. Or input and save to a wide variety of file formats including PCX™, IFF, GIF™, TIFF* and TARGA®*. You can

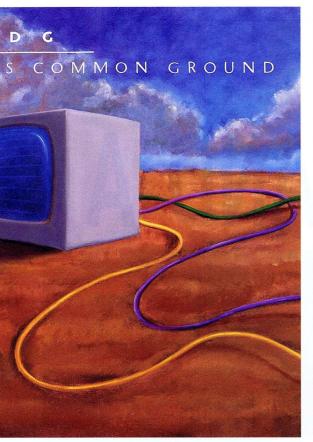
even output to video, film recorders or PostScript® printers. And you can expand input and output capabilities as your needs grow.

ADPro also solves many complex imaging problems

which have plagued the Amiga artist.
Modify dynamic range to adjust color
vividness. Create professional backgrounds.
Remove unwanted pixels in one
simple operation. Make
aspect corrections or
eliminate jagged
edges with

powerful scaling and anti-aliasing tools.







AS THE CENTER OF THE UNIVERSE.



INPIIT

And merge images from different sources (in true color). ADPro solves these problems and more with a simple point and click.

It also supports the programming language, ARexx. So you can process hundreds of images automatically or set up your own shortcuts for often-used sequences.

Choose ADPro for professional uses. Or for an entry-level alternative, consider The Art Department

(TAD). Both place the exciting world of color processing within reach of every

Amiga user. **S**o, join us at the center of the universe.



RESULT.

You'll love the view.

BETWEEN A SLOT AND A



HARD PLACE...

. . .lies a hard-drive interface. But which one should you choose?

Check this comparison of 14 SCSI hard-disk controllers!



By Morton A. Kevelson

eciding that you need more disk space is easy. What follows is a more difficult task: Trying to select from among the many expansion options available—sorting through advertisements and manufacturers' claims—can make your head throb. To spare you the unpleasant sen-

sation of being trapped between a rock and a hard place, I gathered together all the SCSI hard-drive interfaces currently on the market. I installed, tested, and worked with each one, and then drew up this report.

Because the Amiga's "native" SCSI hard disks have traditionally cost more than the ST506 and ST412 units widely available on other platforms, some developers have offered ST506/ST412 interfaces for the Amiga. Such controllers, however, have not taken hold in this market. The greater speed of the SCSI interface, its easy expansibility, and the steady decline of SCSI drive prices have made SCSI systems increasingly attractive to Amiga users. Developers are now responding with a proliferation of SCSI interfaces: The market has more than doubled in two years and continues to grow even as you read!

Although many companies sell their drive interfaces bundled with hard disks, all of them will sell you a board by itself. By electing to "roll your own" system, you can shop around for drives and select the combination of price, performance, and capacity that best suits your requirements. Depending on the interface you buy, you may also be able to add a removable-media drive to your system instead of a fixed hard disk. Because this technology is relatively new, support for it is often not apparent from the interface's documentation. If you decide that you want this feature, I recommend you consult the interface manufacturer.

To provide a uniform basis of comparison, I tested all 14 of these autobooting host adapters with the same Quantum ProDrive LP52S. Although the Quantum drive is somewhat more expensive than a Seagate drive of the same capacity (52MB), it is faster and smaller, and as such has become extremely popular.

The Quantum drive's size makes it eminently suitable for hardcard configuration; that is, for mounting the drive directly on the board.

Because the hardcard setup is so common, I configured each of the boards this way. (Keep in mind that this configuration involves giving up an extra expansion slot—generally the one to the right of the card—in your Amiga.) Assembly was not difficult, and by the end of this project, I was able to put the parts together and slip the card into the Amiga in 15 minutes. Installing the hard drive in one of the Amiga's drive bays usually requires more time.

For each card tested (except for California Access's Malibu Board, which was a prototype unit), I made up a "report card," wherein I gave grades for its speed performance with the drive, the quality of the accompanying software, and the quality of the documentation. Here I also noted the hardware warranty and indicated whether the unit is compatible with Commodore's RDB (Rigid Disk Block) standard (see the sidebar "Ready for RDB?" for an explanation of this protocol). Finally, I totaled these ratings and, taking into account all these factors, plus others such as technical support and ease of installation, I summed up my opinion of each board with an overall score.

To test the speed of these boards, I used DiskSpeed 3.1 on an A2000 (see the accompanying table of speed results). The computer I used was equipped only with a Microbotics 8UP! board—containing six megabytes of RAM and one megabyte of chip RAM. The bytes-per-second reading for the create, read, and write tests are based on a 256K buffer, as it gives the most impressive results. Keep in mind that for most applications, you will use a 10K buffer, which can cause performance to slow by a factor of two or more.

Host adapters that clock speeds greater than 586K per second are pushing the limits of the stock system. Such results indicate that the board will give faster performance on accelerated systems. Another thing to keep in mind is the fact that high-capacity drives generally mean greater speed—that is, a 200MB disk will turn in faster results than the 52MB Quantum.

For information on how to contact manufacturers of the products described, see the "Manufacturers'/Distributors' Addresses" list on p. 96.

A2091

A2091
Commodore Business Machines
Price: \$199
Warranty: One year
Performance: Very Good
Supporting Software: Very Good
Documentation: Good
RDB: Yes
Overall: Good

The A2091 is a full-length, two-layer card with sockets for RAM and a power connector for the hard drive. You can install 512K, 1MB, or 2MB of memory using 256 kilobit-by-four chips using discrete one-megabit chips. A DB25 connector is provided for external SCSI devices.

AdSCSI 2000

AdSCSI 2000
ICD
Price: \$199.95
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Very good
RDB: Yes
Overall: Excellent

AdSCSI 2000 is a half-height card with mounting rails that support both the hard drive and the rear mounting bracket. A DB25 connector on the rear bracket lets you hook up an external SCSI device. Power for the hard drive is available from the board. ICD's AdSCSI 2080 (\$279.95) is similar to the 2000 model, except that it is a full-length card that also accepts up to eight one-megabyte SIMMs (Single Inline Memory Modules) in two-megabyte increments. As such, it requires that you mount your hard drive in one of the Amiga's drive bays.

Jumpers on the board allow you to set AdSCSI's device number to any value between zero and seven. This is an important consideration if you want to set up a network to share SCSI peripherals among two or more computers. Be aware, however, that while the AdSCSI hardware supports SCSI networks, its present driver system does not.

Tests on the AdSCSI went extremely well.

ALF AF SCSI II, Professional 6.2

ALF AF SCSI II, Professional 6.2
Pre'spect Technics
Price: \$195
Warranty: One year
Performance: Excellent
Supporting Software: Excellent
Documentation: Very good
RDB: Yes
Overall: Excellent

In Pre'spect Technics' catalog, the ALF AF SCSI II appears among 27 other varieties of the ALF interface. This array of options is not as complex as it first appears. The various models are grouped for use with the A500, A1000, and A2000, and then for specific types of hard drives and for various levels of autobooting.

The two letters in the middle of the model name identify the type of booting the interface supports and its physical configuration (in this case, Autobooting and FastFileSystem). The last three or four letters identify the type of hard drive for which the interface was designed (the MFM and RLL models, for instance, are designed to control ST-506/ST412 drives). The SCSI drives have built-in, intelligent controllers with increased storage capacity and speed.

The original premise behind ALF was to take advantage of the low-cost controllers and hard drives in the MS-DOS world by building an Amiga interface to them. The performance of the resulting interface/controller combination is optimized by the driver software on the Amiga side of the system. Each version of ALF is based on a full-length card with boot ROMs, supporting circuitry, and a specialized PC/XT-style slot. The card is then customized for the drive by installing a suitable interface or controller in the slot. In this case, a custom SCSI interface was provided.

Setup went easily. All of the set-up options were done by clicking on the proper selections in response to the prompts. An occasional off-the-cuff remark from the program ("You have an autoboot controller. Nice to know.") served to liven things up. The ALF installation disk I received contains the German keymap, but Pre'spect claims to now include a US keymap with the board. ALF's supporting software includes a hard-drive back-up utility and a collection of other programs that let you hack around the disk drive.

Comspec SA Series SCSI Host Adapter

Comspec SA Series SCSI Host Adapter Comspec Price: \$169 Warranty: One year Performance: Fair Supporting Software: Adequate Documentation: Fair RDB: No Overall: Fair

The Comspec SA is a full-length, two-layer card with a DB25 connector for external SCSI devices. The active components are mounted slightly towards the rear, necessitating the use of standoffs when mounting the drive in the hardcard configuration. This increases the height of the assembly. Although the board's manual was marked preliminary, Comspec indicated that it was not. I would feel better disposed to it if it actually were preliminary.

Apparently, Comspec did not ship us the latest setup software, which the company claims lists the Quantum LP52S among its supported drive types. The version I received required that I manually modify an existing parameter file for an older Quantum drive before using the set-up program. To that end, I found

The Art of Assembly

UNLESS YOU PURCHASE your interface board with a hard disk attached, you will need to use a SCSI cable—a 50-conductor flat-ribbon cable with connectors at each end—to join the two components. When hooking up, make sure that pin 1 on the host adapter connects to pin 1 on the drive. Although this pin was marked on all the adapters I looked at, the label was not always easy to spot. Conversely, most hard-drive connectors do not mark pin 1. When in doubt, consult your reseller or manufacturer.

If you plan to add multiple SCSI devices to your system, be aware that only the first and last devices in the chain should retain their terminating resistors. These resistors are standard equipment on SCSI devices and usually look like little bars of caramel with short wire legs.

You can daisy-chain up to eight devices, numbered zero through seven, in your system. The default device number for autobooting hard drives is generally zero. Most host adapters

reserve device number seven for themselves, but some allow you to change the designation. This is important if you want to set up a SCSI network so that two or more computers can share a hard drive. The present limitation of a SCSI network under AmigaDOS is that only one host system is allowed to write to any single partition. Shared reads, however, are permissible.

Note the distinction between the host adapter, or SCSI interface, and the SCSI controller. The host adapter connects to the Amiga and provides the SCSI bus. The controller, on the other hand, interfaces the SCSI bus to the hard drive. Most hard drives have embedded controllers.

All of the host adapters provide terminals to connect to the LED labeled "hard disk" on the front of the A2000. Jumpers are also provided to disable expansion RAM (which a handful of games and other applications find incompatible) and to disable autobooting when using the Kickstart 1.2 ROM.



Finally, if you have had your A2000 for some time and have somehow avoided purchasing a hard drive, your system may still have the Kickstart 1.2 ROM. Unless you are specifically waiting for AmigaDOS 2.0, I strongly recommend that you upgrade to the 1.3 ROM. This will allow you to boot automatically from the hard drive and eliminate the need for a floppy disk. \Box

-MK

myself entering such esoterica as interleave, cylinder numbers, and blocks per track, while accepting the default values for a slew of parameters I knew nothing about.

When I finished, I was pleasantly surprised to find the drive at the point that I could format it manually using AmigaDOS. The files on the boot partition, which you must format using the regular file system, must be copied via AmigaDOS as well.

Running the speed checks on a FastFileSystem (FFS) partition gave acceptable results without DMA and CPU contention. With contention, however, system performance deteriorated to less than that of a floppy drive. After running DiskSpeed for an hour and getting nowhere fast, I ceased trying to get results.

The Comspec SA manual indicates that it supports removable-media drives, including Bernoulli-cartridge drives.

DataFlyer

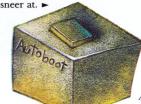
DataFlyer
Expansion Systems
Price: \$99.95
Warranty: One year
Performance: Very good
Supporting Software: Very good
Documentation: Good
RDB: No
Overall: Very good

Expansion Systems' DataFlyer is a bare-bones, half-length, two-layer card. In lieu of mounting rails, holes are provided so you can mount a hard drive to the back of the card. Mounting the drive in this way means that you obstruct the slot to the left of the card, as opposed to the other boards, which obstruct the slot on the right.

Optional accessories include a pair of mounting rails and a 25-pin, flat-ribbon cable with DB25-connector assembly. Expansion Systems offers an optional memory board that mounts to the DataFlyer on a 100-pin header located directly above the connector to the Amiga's expansion slot. Using 256K-by-4, one-megabit chips, you can add memory in 512K increments up to four megabytes. With 1MB-

by-4, four-megabit chips, the card holds up to eight megabytes.

Expansion Systems does not try to compete by publishing claims of speed or superior performance. Instead, the company points out that its sub-\$100 card is cost effective on the basis of kilobytes per second. Surprisingly enough, the performance of the DataFlyer was nothing to



AmigaWorld 25

FastCard Plus

FastCard Plus
Xetec
Price: \$150
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Excellent
RDB: Yes
Overall: Excellent

FastCard Plus is a full-length, two-layer card that accommodates either two or four megabytes of RAM using one-megabyte SIMMs, or eight megabytes of RAM using a pair of four-megabyte SIMMs. Its rear mounting bracket is fitted with a DB25 connector for external SCSI devices. You can set the board up as a hardcard by mounting the drive toward the rear on ½-inch standoffs.

Xetec boots the FastCard Plus from a small, regular file-system partition that then transfers control to an FFS partition. The only operating disadvantage to this approach is that when Preferences saves the system-configuration file, it ends up in the FFS partition and is not found when the system reboots. You can easily fix this by using the Workbench CopyPrefs utility to transfer the system-configuration file to the boot partition. For the moment, Xetec has chosen to use this system because it makes it easy for the company to provide driver updates to its customers. The company reportedly is working on a technique to allow booting directly to the FFS while maintaining easy software updates.

Although you can change FastCard's SCSI number to any value between zero and seven, only device number seven will autoboot with the default ROM. All other device numbers must boot from a floppy disk, which you can easily format using the installation software. Custom boot ROMs, available from Xetec, will let FastCard Plus autoboot with any SCSI address.

The latest version of the FastTrak interface software supports SCSI bus arbitration. This lets you create SCSI networks, so that multiple Amigas can access a variety of peripherals on one SCSI bus. So that you can maintain security on SCSI networks, Xetec's partition utility lets you restrict access to all partitions or selected SCSI device numbers. In doing this, however, you must exercise caution regarding shared partitions.

Fireball

Fireball
M.A.S.T.
Price: \$145
Warranty: One year
Performance: Good
Supporting Software: Adequate
Documentation: Fair
RDB: Yes
Overall: Fair

The first thing I discovered about Fireball was that it is not compatible with my Microbotics 8MB RAM card. The second thing I found out was that Fireball is not happy with a Micron Technology two-megabyte board, either. Only after I learned that Fireball got along just fine with the IVS Meta 4 four-megabyte board was I able to set up the hard drive and complete the tests.

Fireball is a full-length card with no less than three SCSI connectors. A 50-pin SCSI connector at the back of the card is the one to use when you configure Fireball as a hardcard. A second 50-pin SCSI connector along the top edge of the board lets you control a hard drive in one of the Amiga's drive bays. Finally, the DB25 connector on the rear mounting bracket is useful for external SCSI devices. The rear bracket is also equipped with a miniature toggle switch that turns autobooting on and off.

Fireball's EZ Prep set-up software is simple to use but short on frills. The Quantum LP52S hard drive was not among EZ Prep's repertoire of recognized mechanisms, so I had to enter the drive's parameters manually. From that point, preparing the drive and writing the RDBs proceeded quickly enough, although setting up the boot partition and copying the Workbench files had to be done manually as well.

Fireball uses a data-transfer method called Direct Memory Access, or DMA. It did not excel in the speed tests; performance dropped by half with contention turned on.

HardFrame/2000

HardFrame/2000
Microbotics
Price: \$249
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Good
RDB: Yes
Overall: Very good

Microbotics' HardFrame/2000 is a half-length, four-layer card mounted on a lightweight aluminum chassis that supports the hard drive as well. Although the drive mounts to the rear, the 50-pin SCS1 connector is located at the front of the board next to a 25-pin header for an external SCS1 cable. The card includes a power connector for the hard drive. The rear mounting-bracket portion of the chassis does not have a cutout for a DB25 connector.

HardFrame also uses the DMA transfer method. Partitioning software is mouse-driven with on-line help. The HardFrame/2000's documentation, provided on floppy disk, is full of technical details as well as instructions on how to assemble your own 25-conductor cable if you should need one.

The Kitchen Sync

THE KITCHEN SYNC—KOMPLETELY
INTEGRATED TIME BASE CORRECTORS HAVING
EVERYTHING NECESSARY TO SYNCHRONIZE
2 INDEPENDENT VIDEO SOURCES.

Completely synchronize not one, but two independent video sources for use with virtually any switcher or digital video effects system requiring synchronous video inputs.

- Two complete infinite window time base correctors on one IBM AT/Amiga compatible card
- Works with any video source, including consumer VCRs and camcorders
- S-VHS and Hi-8 compatible Optional Y/C output
- Great for use with the Video Toaster

When they created the Toaster, they threw in everything but the Kitchen Sync.

\$1895



SuperGen

GENLOCK AND OVERLAY SYSTEM

- Broadcast quality RS-170A composite output
- Two independent dissolve controls
- Software controllable
- Compatible with all Amiga® models
- Dual video outputs Key output
- Selectable 3.58MHz notch filter

\$749.95



SuperGen2000™

THE FIRST TRUE Y/C GENLOCK & OVERLAY CARD FOR THE AMIGA® 2000 SERIES COMPUTERS

- S-VHS, ED-BETA, Hi8 compatible
- Broadcast quality NTSC RS-170A output
- Built in SC/H phase adjustability
- Built in sync generator Dissolves

\$1995



DIGITAL

CREATIONS

FOR MORE INFORMATION, CONTACT YOUR DEALER OR CALL 916/344-4825 FAX 916/635-0475

Ready for RDB?

THE RIGID DISK Block specification, or RDB, is Commodore's solution to hard-drive interchangeability. With RDBs, the hard drive's format specification, which includes the number, size, and type of partitions, is stored in a small area on the hard drive itself. The host adapter automatically examines the RDB and finds out all it needs to know about the drive. It should be possible to move a hard drive conforming to the RDB spec from one host adapter to another without loss of data and without having to reconfigure or reformat.

The old system relied on the storage of drive-configuration data in a mountlist file that was read off the boot partition on startup. The operating

code for the host adapter was generally stored in a file on the hard drive as well. This system made it easy for the developer to update the driver code by simply sending out floppy disks, but tied a formatted hard drive to the original controller. By contrast, RDBs necessitate that the driver code be stored in a Read Only Memory (ROM) chip on the host adapter. This can make code revisions more difficult and more expensive.

RDBs are still a new concept on the Amiga, and I was not surprised to find that it is not universally embraced. Some host adapters put all or part of their driver code in the RDBs. The Trumpcard software handles foreign RDBs best; it simply senses the incom-

patible code and gives you the option of replacing it. Despite dire warnings to the contrary, the Trumpcard installation utility preserved the data on the hard drive.

In most cases, when I encountered difficulty, I was able to rewrite the RDB on the drive without losing data. I expect that RDB compatibility problems will disappear as the developers become accustomed to their protocols. Factory-fresh drives will not have this problem, and unless you need to move a drive between host adapters, you should not worry about RDB compatibility. If you do swap drives, you should back up the data and reformat the drive at the earliest opportunity. □

-MK

Impact A2000 HC Series II

Impact A2000 HC Series II
Great Valley Products
Price: \$199
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Excellent
RDB: Yes
Overall: Excellent

GVP's Impact HC Series II is a basic, high-performance SCSI host adapter. This full-size, two-layer card provides a DB25 connector on the rear mounting bracket for connection to external SCSI devices. Because GVP's own large-scale integrated circuit encompasses most of the interface's circuitry, the number of on-board parts is minimal. GVP also offers this adapter in two other forms. The Impact A2000 HC+8 Series II card (\$249) allows you to add two four, six, or eight megabytes of RAM using one-megabyte SIMMs. The just-released Series II Ac-

celerator System provides the SCSI controller, a 68030 accelerator (either 22 or 33 MHz), and up to 16MB of RAM (\$1099 and up). Upon encountering trouble with hard-drive

formatting, I called GVP's technical-support line on two occasions and left voice-mail messages. Both times, GVP called back within an hour with an-

swers to my questions.

Nexus

Nexus
Advanced Storage Systems
Price: \$299
Warranty: Five years
Performance: Superior
Supporting Software: Very good
Documentation: Excellent
RDB: Yes
Overall: Excellent

The Nexus host adapter, from Advanced Storage Systems, is a full-size card. The four-layer circuit board is equipped with a metal shield behind the drive-mounting area, which also serves as the rear mounting bracket. A DB25 connector is provided for external SCSI devices. When configured as a hard-card, power for the drive is obtained from one of the Amiga's own power-supply connectors.

Nexus accepts up to eight megabytes of RAM. Using one-megabyte SIMMs, you can add either two or four megabytes

of RAM; a pair of four-megabyte SIMMs are required to add eight megabytes. Note that the oneand four-megabyte SIMMs are mutually exclusive—you cannot mix the two on one card.

The Nexus package includes easy-to-use installation software and Flashback, a hard-drive back-up utility that supports both file-and image-based backup and restoration. Also on the distribution disk are SpoolIt, a printer spooling program, and SmartCache, a hard-drive speed-up utility. Nexus comes with an incredible five-year warranty.



CREATIONS

SupraDrive with WordSync

SupraDrive with WordSync
Supra
Price: \$149.95
Warranty: One year (two years with
Quantum drive attached)
Performance: Very good
Supporting Software: Very good
Documentation: Excellent
RDB: No
Overall: Very good

WordSync is a half-length card with mounting rails that support both the hard drive and the rear mounting bracket. An on-board, hard-drive power connector is provided. A DB25 connector on the rear mounting bracket, for external SCSI devices, connects to the main two-layer circuit board via a 25-pin flat-ribbon cable.

The SupraBoot disk is used to boot the system if you do not have Kickstart 1.3 or if you are setting up a new drive. SupraFormat, which you use to actually set up the drive, is a full-screen, icon-driven utility. It automatically identifies and selects the parameters for any SCSI controller and hard drive on your system.

Additional utilities are provided on the SupraTools disk. These include the SupraEdit program, which resembles the SupraFormat program and lets you access lower-level hard-drive parameters.

WordSync is based on the premise that two bytes are better than one; that is, that disk operations can be speeded up by transferring two bytes of data at a time. Its performance was comparable to the other systems under normal conditions, but it slowed a lot with CPU and DMA contention. Supra has promised the June release of updated drive software that is expected to include a 10–15% speed increase and support for the RDB mounting system.

Trumpcard Professional

Trumpcard Professional Interactive Video Systems Price: \$279.95 Warranty: One year Performance: Excellent Supporting Software: Superior Documentation: Excellent RDB: Yes Overall: Excellent

Trumpcard Professional is a half-length card with a matched pair of 50-pin SCSI connectors. Interactive Video Systems did not provide for a 25-pin SCSI port on Trumpcard Pro, as it found 25-pin cables to lack sufficient noise immunity at the highest transfer rates. Instead, the company provided a pair of 50-pin SCSI connectors. The card is designed to maximize the performance of video applications in a 68030-based Amiga with a high-capacity hard drive.

TCUtils 2.0, Trumpcard's installation and set-up software, is the best I have seen for overall flexibility

and ease of the initial setup. Starting with a brandnew hard drive, if you choose to accept the default option of a single partition, TCUtils will handle the low-level formatting, AmigaDOS formatting, and installation of Workbench and AmigaDOS.

If you wish to partition the drive, TCUtils' clickand-drag graphical interface makes partition sizing as painless as possible. You can choose between the regular file system or the FFS for AmigaDOS partitions, or you can create partitions for use with Ready-Soft's AMax II Macintosh emulator. If you think you know what you are doing, TCUtils will also let you specify every conceivable user-adjustable hard-drive parameter. The latest Trumpcard driver release supports Commodore's RDB system.

Trumpcard Professional supports full bus arbitration and multiple hosts on the SCSI bus, allowing SCSI networking. Jumpers on the board let you set the SCSI ID to any possible value.

Trumpcard

Trumpcard
Interactive Video Systems
Price: \$169.95
Warranty: One year
Performance: Very good
Supporting Software: Superior
Documentation: Excellent
RDB: Yes
Overall: Excellent

The original Trumpcard, IVS's lower-cost SCSI host adapter, is a half-length card that you can convert to a hardcard with the included rail kit. The board has a single, 50-pin SCSI connector and a 25-pin header for an optional DB25 connector. Trumpcard lacks the Professional's ID-selection jumpers and the capability to run a SCSI network.

Although Trumpcard did not perform as well in the speed trials as its Pro counterpart, it does compare favorably with the smaller buffer size. It uses the same installation software as does Pro.

Malibu Board

Not wishing to be left out of the line-up, California Access provided us with a preliminary version of the company's Malibu Board. Due to ship by the time you read this, Malibu is slated to cost \$229.95.

The sample board looked like a finished production unit, as it had no jumpers or other modifications. It was a full-length, two-layer card with a DB25 connector on the rear mounting bracket. California Access' Catalina Card (\$99.95), a RAM expander, plugs into a socket on the Malibu Board. You can configure the Catalina Card with two, four, or eight megabytes of RAM using one-megabyte SIMMs.

I was impressed with the installation and set-up software. Although it lacked the ability to write the RDB in its preliminary state, California Access promises this feature in the finished version.

I was able to install a preformatted hard drive and run the complete series of tests on the Malibu Board. ▶

"WE APOLOGIZE"

"In our past ads, we compared PageStream 2.1 to Professional Page 2.0 in six key areas. We said that Pro-Page could not draw Bézier curves. Well, that was wrong. Sorry Gold Disk.

We have prepared a more extensive comparison of PageStream and Professional Page. I think users should judge for themselves which Amiga desktop publisher is now the 'king of the hill.' Our first ads were rather lenient"

— Deron Kazmaier Soft-Logik President



Actual PageStream 2.1 screenshot

ART IMPORT	ProPage	PageStream
IFF (24 bit)	Υ	Υ
TIFF	N	Υ
GIF	N	Υ
EPS	Υ	Υ
EPS – view TIFF preview	N	Υ
ProDraw	Υ	Y - Editable!
Aegis Draw	Υ	Y - Editable!
GEM	N	Y – Editable!
IMG	N	- γ
MacPaint	N	Υ
TEXT IMPORT		
WordPerfect	Υ	Υ
Excellence!	N	Υ
Scribble	Υ	N
ProWrite	N	Υ
ASCII text	Υ	γ
COLOR		
CMYK	Υ	Υ
RGB	Υ	Υ
HLS	N	γ
HSV	N	Υ
Pantone Colors	Υ	N
UCR/GCR	Variable	Fixed

FONTS	ProPage	PageStream_
PostScript Type 1	N	γ
PostScript Type 3	N	Υ
Compugraphic	Υ	γ
Outlines on Screen	Υ	Υ
# Outline Fonts Included	2	18
Typographic Precision	1 point	0.01 points
Max Font Size (any type)	720 points	183,000 points
INTERFACE		
Framed Text	Υ	Υ
"No Frames" Text	N	Υ
# of Open Documents	1	Unlimited
Linked Text Processor	Υ	N
Font Caching	Manual	Automatic
View Magnifications	7 fixed	User Scalable
Zoom View	N	15 - 1500%
Templates	Υ	Υ
Master Pages	N	Υ
Measurement Systems	3	9
Maximum Page Size	22x22 in.	1200x1200 ft.
Standard XCV Editing	N	Υ
Paragraph Tagging	Υ	Υ
And the Winner Is.	•••	
Price	\$395.00	\$299.95

"It's a wonderful but also somewhat sobering thought that the brilliance of your final page is limited by your own creativity and imagination, and not the capabilities of the software you are using. At the end of the introduction in the main manual, Soft-Logik have included a rather poignant message - 'We give you the tools to dream'. I think, with PageStream V2.1, they might be right."

— Jonathan Living Amiga User International

"The new Amiga desktop publishing king of the hill." — AmigaWorld, February 1991 "the new heavyweight champion among Amiga desktop publishing programs." — Amiga User International, April 1991

Soft-Logik Publishing Corporation We give you the tools to dream.



1-800-829-8608

PageStream is a registered trademark and "We give you the tools to dream" is a trademark of Soft-Logik Publishing Corporation. PostScript is a registered trademark of Adobe Systems Inc. Compugraphic is a registered trademark of Commondore Business Machines. PageStream 2.1 is a free upgrade from PageStream 2.0, Features compared in this and other Soft-Logik Canada at 1-14-66-68-13 at 1-14-60-68-13 at 1-14-60-68-13.

Decisive Data: Speed Test Results

Table 1.

Fireball

Nexus

HardFrame

SupraDrive

Trump Pro

Trumpcard

Malibu

Impact Series II

26.8

24.5

24.6

38.1

47.6

26.7

28.1

26.0

Using MKSoft's DiskSpeed 3.1, the program the Amiga community relies upon to check drive-interface performance, I put our 14 subjects through their paces. With Workbench 1.3 and its assorted files installed on the hard drive, I ran the first set of tests to find out how many kilobytes each host adapter could create, read, and write in one second when using a 256K buffer.

The results of these trials appear in Table 1. In each column, the figure to the left of the slash represents the results generated without anything else going on in the machine. The number to the right of the slash shows what happens in a more realistic multitasking environment. These are the results I got when I activated CPU (Central Processing Unit) stress—an option that repeatedly copies strings during disk activity-and introduced DMA (Direct Memory Access) contention, which simultaneously transfers information on the data bus.

Table 2 shows how many files the drive was able to create, open and close, scan, delete, and seek/read in one second when attached to each controller. As in Table 1, the initial figure listed for the interfaces in each category tells you the results without DMA and CPU contention. The second figure shows you what happens with these extra de-

mands on the system.

Table 3 gives you the results of two "real-world" tests. The first column indicates how long each host adapter took to autoboot from a cold start with a generic Workbench 1.3 startup-sequence. The second column shows how long it took to build a new index on one field within a large database file using Superbase Professional 3.01 (Precision Software).

Interface	Create	Read	Write	
A2091	247/204	406/392	609/498	
AdSCSI	390/372	650/640	643/622	
ALF AF	421/402	609/585	574/569	
Comspec SA	131	169	221	
DataFlyer	160/158	201/199	433/415	
FastCard Plus	279/272	504/506	509/538	
Fireball	241/107	361/167	557/243	
HardFrame/1200	299/289	580/567	643/623	
Impact Series II	297/143	583/275	575/279	
Nexus	499/490	655/650	631/633	
SupraDrive	278/82	534/148	677/177	
Trumpcard Pro	304/294	600/597	620/614	
Trumpcard	247/242	385/406	424/391	
Malibu	309/236	577/385	569/388	
ENTER METERS				
Table 2.				
Interface	Cold Boot	New Index		
A2091	25.6	47.8		
AdSCSI	44.1	23.4		
ALF AF	22.4	50.1		
Comspec SA	24.7	37.5		
DataFlyer	22.7	41.4		
FastCard	32.9	37.4		

41.1

39 7

34.9

41.2

37.6

39 1

40.1

32.6

Table 3. Interface	Create	Open/Close	Dir Scan	Delete	Seek/Read
A2091	7/4	18/11	70/40	25/16	197/128
AdSCSI 2000	49/38	149/107	66/51	195/130	29/23
ALF	9/9	19/16	101/78	63/52	185/122
Comspec SA	9	26	85	14	23
DataFlyer	9/8	24/20	149/104	31/27	204/130
FastCard	11/10	26/20	134/98	15/13	23/29
Fireball	11/7	24/14	97/48	15/10	196/78
HardFrame	11/9	26/19	181/108	53/35	201/131
Impact II	11/6	35/16	106/43	31/20	198/78
Nexus	12/10	19/17	116/83	61/46	186/122
SupraDrive	10/2	28/6	149/14	31/4	200/130
Trump Pro	10/9	41/29	145/95	19/15	197/127
Trumpcard	11/10	26/21	109/75	14/12	194/126
Malibu	12/10	39/28	158/93	17/14	200/131

For a preliminary product, the board gave a pretty impressive performance.

BUT WAIT! THERE'S MORE!

There are a few more A2000 hard-disk controllers, not yet out of the gate. In addition to the Malibu Board, you can look forward to Flash! from M.A.S.T., which will allow you to add up to eight megabytes of memory. IVS's Grand Slam is essentially a Trumpcard Professional with an on-board parallel port and sockets for eight megabytes of SIMM-based RAM. Watch for reports on these boards in the Reviews section of upcoming issues.

Morton Kevelson holds a day job as an electrical engineer. He has vast computer experience and writes regularly for a number of Amiga publications. Write to him c/o Amiga-World Editorial, 80 Elm St., Peterborough, NH 03458.

Making a RUN For the Roses

With a bigger, faster, and more powerful stable of BASICs for the Amiga,

the common man's programming language is no longer an

also-ran in the "Developers' Derby."

By Mark Jordan

f you were to consider development tools for the Amiga in terms of a horse race, the BASIC stable of years past would have been a sure bet to finish dead last in a contest with the rest of the competition. Today's higher-level languages (C, Modula-2, Forth, and the like) and even the powerful but easy-to-use new authoring systems (CanDo, AmigaVision, and others) would easily have run rings around not only the early "street BASICs" but also the later Microsoft implementation, Amiga Basic.



While still scorned by many professionals and spurned by numerous hackers, BASIC (Beginner's All-purpose Symbolic Instruction Code) has not merely survived into the 1990s—it flourishes! And well it should. It always has been an easy language to speak; these days it's a powerful one as well. Today's BASIC really has it all: word-processor-like editing, structured programming, cross-computer compatibility, and speed. People who turn their noses up at BASIC in 1991 are looking a gift horse in the mouth and missing the chance to talk to their computer in a truly expressive language.

The question, however, is which one in this sleek new crop of BASICs is best? Or, more precisely, which is best for you? Think of this article as a handicapper's guide in which we'll dope out the contenders and see which ones are worth a wager. It's a strong stable—with six independent starters (True BASIC, HiSoft BASIC Professional, F-Basic 3.0, GFA BASIC 3.5, Blitz Basic, and AMOS) plus a compiler/enhancer for Amiga Basic (AC/Basic) and a near-BASIC alternative (Amiga COMAL).

Obviously, eight serious software packages cannot be covered comprehensively in a single article. To streamline things, we'll look at these eight programs in three distinct ways: through my subjective evaluation in the text, a fairly comprehensive feature-comparison chart, and the results of benchmark speed tests. Used together, these three components should help you get an overview of what our BASIC racing stable has to offer. (As a point of reference, all three approaches include comparisons with the Amiga Basic currently implemented on Workbench 1.3.)

Furthering the racing analogy, it happens that our eight hopefuls shake down nicely into four distinct two-horse "entries." By looking at them in this comparative fashion, it will be easier to assess the strengths

and weaknesses of each. Those are the ground rules, so let's begin by taking a canter through the halls of ivy where BASIC got its start and its second wind. (For details on how to contact the developers of products covered in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 96.)

It's Academic: True BASIC And COMAL

BACK IN THE early days of BASIC, things weren't as good as they are today. There were no compilers, no long variable names (only a two-character max), and no loops other than FOR/NEXT. This was the era of "street BASIC"—with its ubiquitous GOTO and its ugly variations of "spaghetti-code" (so named because of the language's almost totally unstructured nature, which generally resulted in programs whose logic was nearly unfathomable—akin to a heaping plate of long, stringy spaghetti noodles all tangled up and sloshed together). Making matters even worse, programs written using street BASIC were hardware-dependent, running only on the computer system on which they were written.

Three college professors, one in Denmark and two in America, decided to do something about it. In the early 1970s, Danish professor Borge Christensen was the first to take on restructuring BASIC when, with the help of a couple of extremely bright students, he produced one of the more enduring alternatives to BASIC, COMAL (COMmon Algorithmic Language), now available to Amiga users as Amiga COMAL (\$99.95, including compiler, COMAL Users' Group).

Meanwhile, Dartmouth professors John Kemeny and Thomas Kurtz, the inventors of BASIC, set out to "replace the obsolete and often ugly implementation of BASIC with a well-designed, modern version [which is] portable, or hardware independent." (This is from the preface to the True BASIC manual.) The result of their work was **True BASIC** (\$99.95, True BASIC, Inc.), a structured dialect of BASIC that works on several different computer systems.

Both succeed in their goals of creating a fairly portable, very structured language. COMAL programs written for the Amiga transfer to other COMALs without much effort, as do True BASIC programs within the True BASIC family. COMAL offers more than 50 control commands to help structure programs (and thus put an end to spaghetti-code), including FOR, PROC, EXEC, DO, REPEAT, and WHILE, plus decision-makers such as CASE, ELIF, ELSE, ENDIF, ENDWHILE, EXIT, OTHERWISE, THEN, UNTIL, WAIT, WHEN, WHILE, and IF. True BASIC does not provide quite as many

True BASIC does not provide quite as many choices, but the 28 it does are enough to give any program listing a great deal of clarity. Both have lots of options for creating sequential and random files, including such novel commands as COMAL's RECORD, which allows you to deal with a whole set of fields (record items) in one gulp, and True BASIC's

matrix (MAT) commands, which let you read whole arrays from disk with just one statement. (MAT commands do lots of other things, too, such as fill, copy, print, input, and compute arrays with a single statement.)

Both languages also have easy-to-use drawing commands: COMAL offers three graphics packages (including a form of "turtle graphics" borrowed from Logo), while True BASIC provides a screen-coordinates mode that makes creating charts and graphs a breeze. Both languages are easy to learn, too. True BASIC wins points for its two clearly written manuals (one user, one reference), and COMAL scores with its easy-to-use editor. And both create stand-alone programs that will run on the Amiga without any host programs.

That said, I must report that I have some problems with the underlying philosophy of these two languages. The trouble with portability is that it makes expression of the personal character of the computer difficult. In effect, we Amigans have been lowered to the music and graphics level of IBM PCs and other machines. The trouble with structure is that all other BASICs have it as well these days. It's no longer a selling point. Selling points for Amiga languages today are ease of use, graphics and music power, and blinding speed, whereas COMOL and True BASIC offer only ease of use.

Also, the trouble with languages developed by professors is that form becomes more important than function. For instance, True BASIC demands that you set all variables with LET, and COMAL does not let you use the value of the variable in a FOR/NEXT loop unless you equate it with another variable. It's like English teachers who demand an outline for every written assignment—even poetry!

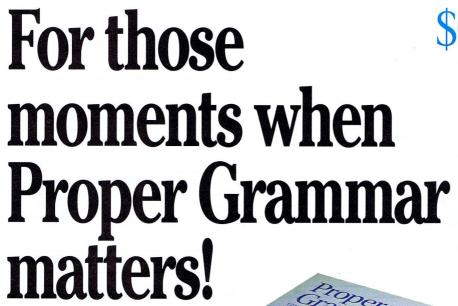
If Amiga Basic (which comes as part of all pre-2.0 releases of Workbench) were the only alternative, I would jump on one of these two. Amiga Basic, however, is *not* the only alternative, and that is why I can't really recommend either one.

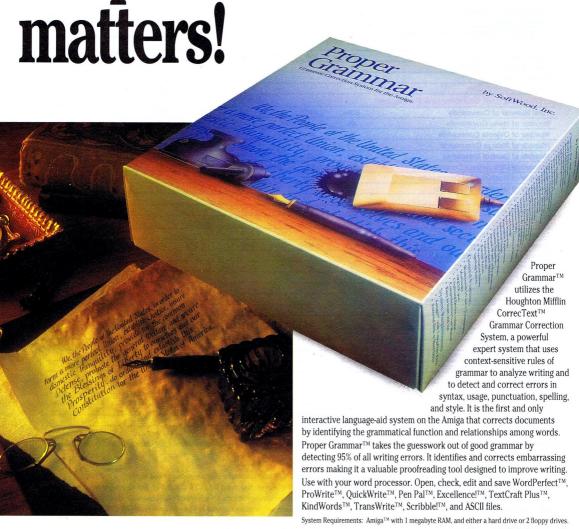
Language Enhancers: AC/Basic And HiSoft BASIC

ALTHOUGH SOME MAY disagree, Amiga Basic has been roundly hated by most users ever since it was released. A sluggish editor with even more sluggish menus and requesters, it produces sluggish programs. And those are its good points. Okay, maybe it isn't *that* bad: Amiga Basic does have modern commands, including over 20 object commands, word processor-like editing, and . . .well, I'm sure there are some other good things. At least it is better than its predecessor, ABASIC (the BASIC from Metacomco included with the early 1.1 release of Workbench).

Sluggishness is hardly one of the hallmarks of a top-class racehorse. If only one could speed up Amiga Basic, all would not be lost. In fact, one *can* do it, and in two ways, which is why these two adaptations,







Word Perfect, ProWrite, QuickWrite, Pen Pal, Excellencel, Scribblel, KindWords, TransWrite, and TextCraft Plus are trademarks of their respective owners.

1(800)247-8330

SoftWood ©1991 SoftWood, Inc. P.O. Box 50178, Phoenix, AZ 85076

Visa/Mastercard Accepted

Comparison of Key Features in Eight Amiga BASICs¹

	AMOS	HiSoft	GFA	F-BASIC	Blitz	TrueBASIC	A/C Basic	COMAL
EDITING		Walle .						
Insert/Overstrike	•		•	•	•	•		•
Cut/Paste		•	•	•	•			W 74 E
Search/Replace	•	•	•	•	•	•	•	•
Auto Line Formatting (cap, indent, spacing)	- 18 W	~					~	•
Folds (hides) Procedures/Subroutines			•					
Allows Multiple Commands per Line	•	•		•	•		•	
Pointer/Cursor On/Off Toggle (p - c)	••	• (c)		• (c)	• •	· (c)		
Trace Feature				~		and the		•
Undo	•	•	•	•		•		
Keystroke History (remembers typing)			•			Manager Manager		~
Save Place (bookmark)	•		•					
Optional Line Numbering (m=mandatory)	Nijmati da za	IN COLUMN	melight of	The Parity of		Maria Paragraf		• (m)
FILE HANDLING								
ASCII File Loads/Saves								
							- 194 - 196 -	
Merge Capability	•	~		~	Mary Car of	-	CHARLES AREA	
Access to File Requester Within Programs		~		~	0.00000	300 (755)	is this gare	
OCCUMENTATION					P. BANKER	34.50	Harall Ha	140 100 1
Number of Pages in Manual	293	358	419	223	134	600+	337	159
Example Programs on Disk	•	•	~	•	•	•	•	•
Help on Disk	•	~				•		
Index	•	•	~	•		• •	•	
COMMANDS (Incl. Statements & Functions) ²								
Total Number of Commands	500+	219	344	280	132	225	199	177
Number of Menu Commands	45	2	7	9	0	5	5	0
Number of Objects Commands	31	23	21	5	15	0	23	0
Number of Strings Commands	14	21	24	26	15	14	24	12
Number of Control Structures	24	29	24	16	19	28	29	49
Number of Disk Access Commands	31	21	34	19	10	29	16	29
Number of Music/Sound Commands	24	5	2	9	9	2	5	0
Number of Graphics Commands	23	13	25	29	27	32	15	30+
Joystick Functions								
One-Step Math Commands (inc, dec, mult, div)						~		
							75.5	
GENERAL FEATURES			•	•	and the same		••	
Local /Global Variables	•					•		2014
Maximum String Length	65K	16 Meg	32K	User Set	User Set	1 Meg	32K	32K
Compiled/Interpreted/Both (c - i)	• (i)	••	••	• (c)	• (c)	• (c)	••	••
Compatibility with Other Computers	~	•	~			•	~	•
Multiple Files in Memory	•							
Multitasking with Workbench	•		•	•	•	•	•	1211
Access to Amiga System Routines	•	•	•	•		•	•	•
Creates Stand-alone Application		•	•	•	•	• 44	•	•
EASY GRAPHICS/MUSIC FEATURES®								
Loads IFF Screens					•			
Overscan Capabilities	•							
Power Screens (HAM, Half-Brite)	•							
Fluid Bobs/Sprites Movement	MARK.		MARKET					THE WALL
Font Usage								
						Kara La	(Capy (V) 11/2 (V))	A THE REAL PROPERTY.
Pixel Screen Scrolling								
Pixel Screen Scrolling Double Ruffering					•			
Double Buffering Facilitates Amiga Narrator	•				•	~		

Single bullet (*) means item is implemented; double bullets (* *) mean both items are implemented (where applicable); tildes (-) mean item is somewhat implemented.

¹ Some programs might have features not credited here because the feature is undocumented (or extremely hard to find).

² The number of commands counted above is meant merely as a guideline in assessing each BASIC's capability. Some adaptations may have fewer commands but more power. Also, the method of counting such commands represents an attempt to include all commands that were at least somewhat related to each particular category. For instance, disk-access commands include file commands such as OPEN, loading commands such as BLOAD, and directory commands such as DIR.

^{3 &}quot;Easy" here means that a BASIC command rather than a library routine is available to do the chore.

AC/Basic 1.3 (\$195, Absoft) and HiSoft BASIC Professional (\$159.95, HiSoft/Gold Leaf Publishing), are included here. First, let's take a look at the elder statesman of the two: AC/Basic.

AC/Basic isn't really a language; it's a language enhancer for Amiga Basic. Although it does add a few commands to the roster (SELECT/CASE structures and static/dynamic array compiler options are the most powerful), the reason for buying AC has nothing to do with improving the host language. It has everything to do with speed.

To give you some idea of how slow interpreted Amiga Basic is, in the nine benchmark tests against seven competitors, its record was seven "wins" and 56 "losses." (A "win" is assigned for each competitor it outfinished in each of the benchmark tests.) And when Amiga Basic loses, it loses badly: It takes 73 seconds to run the Stringmix benchmark—fully 58 seconds (400 percent) slower than the next slowest. Using AC/Basic, things improve quite dramatically for Amiga Basic: Once compiled, its win tally rises to 27. That's still 36 times that other BASICs beat it, but if you take a close look at the results, you will find that AC is very close in all categories of operation.

Using AC is straightforward: You boot it up, open up the saved Amiga Basic file you want to compile, click COMPILE, and watch the results. Compiling a 22K program takes just 37 seconds. Usually, that one click is all it takes, although with use, programmers will want to experiment with the 11 click-on compiling options. Occasionally, the compiler reports an error in a program that runs from the interpreter, but I found such instances infrequent and easy to correct. Once compiled, the program is now iconclickable and needs only an Amiga to run on.

HiSoft also compiles Amiga Basic programs and

produces stand-alone programs, but that's just the beginning of its attributes. It is a complete language-development system. HiSoft has more commands than Amiga Basic, and they are better integrated into the compiler. It is fairly compatible with Microsoft's Quick Basic, giving it the advantage of porting over easily to MS-DOS and Macintosh computers. It also has the advantage of being able to compile from the editor, thereby saving the programmer a lot of time and hassle.

The only thing requiring special attention is that when compiling Amiga Basic files, HiSoft works only with ASCII files. That means you will probably have to go back into Amiga Basic and resave old programs (use the comma-A suffix) if you want to compile them with HiSoft.

Using HiSoft's editor is clearly superior to working within the Amiga Basic environment. My only objections to it are that it requires precise spacing within commands (for example, FORT=1TO10—instead of the correct FOR T=1 TO 10—would result in a syntax error) and end-quotes on strings.

A file requester that lets you open and close files is very nicely designed and very fast. (Amiga Basic has no file requester; you must always remember your filepaths, and that's no fun.) One feature of the requester I really appreciate is that it immediately switches directories or paths if you type or click a change, thus saving you the agony of waiting for the whole directory to read into memory each time.

The HiSoft manual does not quite match the AC manual (which is superb), but it does have a feature all programming-language manuals should have: spiral binding. It also provides an alphabetical list of commands—another must-have feature that all too many manuals lack. >

Benchmarks

to a feet and one and	AMOS	HiSoft	GFA ¹	F-BASIC	Blitz	True BASIC	A/C Basic ²	COMAL
		THE RESERVE	DIENEL	The same of the			(Intp) Com	
1. Filewrite	61	87.5	33.08	30	42	171.2	(56) 56	66.5
2. Fileread	40	40.9	22.6	49	33.8	75.4	(51) 25.4	118.6
3. Math	4.28	3.65	5.4	1.7	8.0	5.72	(16) 5.75	7.46
4. Sieve	19.67	10.89	10.5	.52	.51	9.08	(64) 14.4	15.8
5. Drawline	11.5	27.66	14.35	15.19	21	106	(39) 12.8	31.16
6. Stringmix	12.43	10.71	10.9	2.77	7	14.52	(73) 23.8	14.68
7. Print1 (with scrolling)	36.89	86.06	37.74	40	58	58.42	(191) 84	55.28
8. Print2 (without scrolling)	8.41	12.92	16.83	19	27	28.82	(58) 10.6	5.16
9. Count	3.51	8.81	6.3	.29	3.82	16.92	(35) 13.1	9.93
Total "wins" (63 possibilites)	41	27	43	48	34	13	27	19

Remarks:

Filewrite wrote "Hello World." to disk 10,000 times to create a 130,000-byte file.

Fileread read back the "Hello World." file that Filewrite created.

Math measures 5000 iterations of the standard math operators.

Sieve is a Byte magazine benchmark that calculates the time required to find all primes from 0 to 7000.

Drawline drew a line from 0,0 to 639,199 on a hi-res screen 1000 times.

Stringmix used string-sorting commands to rearrange the contents of three strings xx characters in length.

Print1 printed the message "Hello World." 1000 times, allowing the screen to scroll.

Print2 printed the message "Hello World." 1000 times, using cursor-placement commands to place the message at 10,10.

Count is a simple FOR/NEXT loop that counts from 1 to 100,000.

¹ Benchmark tests were made on GFA as an interpreted language only because I found version 3.5's recently added compiler buggy.

² Interpreted (Intp) means Amiga Basic. Compiled (Com) results reflect the enhancement A/C Basic produces.

The only real drawback to both these programs (and you're going to get tired of me beating this drum) is that they don't really dig deep into the Amiga and give us easy access to its sound and graphics capabilities. But for programmers who have some old Amiga Basic programs they wish to speed up, or who need to create some productivity software, HiSoft is an excellent choice. And if those same programmers happen to use a Macintosh or IBM at work (as I do), it makes even more sense.

Racehorses: F-Basic and GFA BASIC

IN PRODUCING THE benchmark tests for this article, it soon became apparent that two products were real thoroughbreds: F-Basic 3.0 (\$99.95, \$159.95 with Source Level Debugger, Delphi Noetic Systems) and GFA BASIC 3.5 (\$99.95, GFA Software Technologies). F-Basic beat the field in 48 out of 63 chances; GFA was close behind with 43 wins. F-Basic's margin of victory was often way ahead of the pack. In the Counting test, for example, F-Basic was 12 times faster than its nearest competitor. Obviously, if execution speed were the only criterion, F-Basic would be the BASIC adaptation of choice.

As in horse racing, however, pure speed is not the only quality that wins the race. One evening with F-Basic will convince you of that. F-Basic has racehorse breeding, all right. The trouble is that it demonstrates traits from the jackass gene pool, as well. To wit:

- It runs from the CLI.
- It is edited from within an awkward text editor that gives the word "picky" new meaning. (You'd better oil up your caps-lock key because with F-Basic you're going to need it.)
- It breaks every convention known to BASIC. For example, it uses question marks instead of apostrophes as REMs (remarks).
- It has a steep learning curve. (It took me over two hours to get just one 10-line program typed in and running.)
- It takes forever to test and debug programs: The drive churns, the program works, more churning, more working, and then—Error in line. . .
- The manual is nearly inscrutable.

But don't cross F-Basic off your list just yet. Remember that speed? Add to it power (a little workhorse breeding as well). F-Basic can load IFF files (both music and graphics), perform animations, do powerful pattern matching for strings, and make use of a built-in matrix package. And it does all of these very fast.

Delphi Noetic is working on version 4.0 (due out this fall). Maybe that incarnation will cross this powerful compiled language with a gentle mare of an editor to produce the ideal steed: a thoroughbred that real people can jockey. Until then, only advanced BASIC programmers should consider F-Basic.

GFA BASIC, on the other hand, is gentle enough for beginners to ride, powerful enough to plow a lot of acres, and fast enough to push F-Basic. Its gentle nature comes from an option-laden editing environment. It gets its strength from the 340 + commands in its vocabulary. And the speed is a result of excellent programming. Version 3.5 also adds a compiler.

The makers of GFA BASIC went out of their way to present an editor with options galore. Auto-indent and bookmarks (you can mark and return to as many as eight places within your file) make it a snap to edit. A hidden procedures option will collapse all subroutines so that just their labels show (similar to an outline processor), which is an excellent idea. Three windows are effectively utilized to allow for program listing, output, and direct mode.

All of the generally accepted commands of modern structured BASICs are found in GFA. It has several machine-language-like manipulations, including INC and DEC, and a group of one-step arithmetic commands that can really speed things up (ADD, SUB, MUL, and DIV). Creating menus with GFA BASIC is much easier than with F-Basic. The MENU () function, for instance, will return just about any menu information you desire—from whether or not the size gadget has been pressed, to whether or not a disk is presently in the drive, and everything in between.

Unfortunately, it takes a little bit of study to figure out exactly how to do all this. The issue is greatly complicated by the fact that this function returns unwieldy numbers like 419403. Think you'll remember that one without referring to the manual? This same trait shows up in the screens and windows arena.

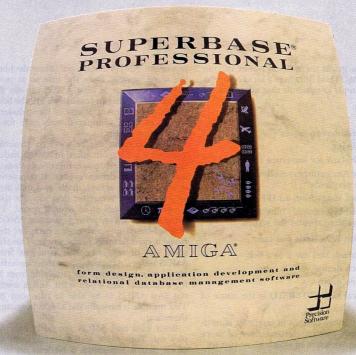
Like all the BASICs reviewed so far, GFA BASIC does not give easy access to the Amiga's special graphics modes, sprites, bobs, and music. The operative word here is "easy" because, again like all the others, the inquisitive programmer can delve into library routines, C structures, and the like. I'm glad the capability is there, but remember, the first letter of BASIC stands for "Beginner."

All things considered, GFA BASIC is an excellent choice for creating powerful nonentertainment Amiga software. F-Basic may actually do an even better job. . if you have the patience (and courage) to learn how to ride that animal.

Graphics Glory: Blitz Basic And AMOS

OUR LAST PAIR of BASIC dialects, **Blitz Basic** (\$99, M.A.S.T.) and **AMOS** (\$99.95, Mandarin / American Software Distributors) offer something none of the others do: easy and powerful graphics. Real easy. Real powerful. They both are so good at sprites and bobs, as well as split screens and double buffering, that it is absolutely no exaggeration to say they are capable of producing commercial-quality games. The sample programs that come with each prove that.





The Heavyweight

For your most demanding database needs, look no further than Superbase® Professional 4, the heavyweight database for the Amiga. The result of more than two years intensive scrutiny by some of the world's largest organizations, this technology won the largest Defense Department PC contract ever awarded and is now available for the Amiga.

Superbase Professional 4 isn't merely an upgrade from our best-selling Superbase Professional, it's an entirely new package absolutely bulging with new features like Workbench 2.0 look and feel, a visual object-oriented Form Designer, over 100 new DML programming commands and the enormous capacity to expand to meet your growing needs.

From the simple to the complex

Now fully cross-compatible with our best-selling PC version, Superbase 4 for Windows, Superbase Professional 4 provides an interface easy enough for novices to learn and use, along with the tools and power to build the most complex database systems you'll ever need. Applications port easily between both environments for added flexibility.

The unique VCR-style Control Panel lets you browse through loads of data, and an improved Form Designer gives you the ability to design custom input screens and presentation-quality output forms quickly and easily. Command pushbuttons, a graphical labels facility, expanded ARexx support and direct dBase file support are just a few of the new features you'll find in Superbase Professional 4.

Heavy numbers

Superbase Professional 4 is a heavyweight in the numbers department too. Up to a billion records per file with up to 999 indices, all open and updated dynamically. Internal text fields can contain up to 4,000 characters and external text can be of unlimited length. There's no limit to the number of fields, open files or relational joins. The only limit is your imagination.

Add a ton of other features like image and sound support (IFF, PCX, GIF and more), telecommunications, a built-in text editor for mailmerges and other operations. Multi-file queries, a banded report generator and WYSIWYG form design all combine to make Superbase Professional the heavyweight among database programs.

Superbase Professional 4 is available now at your favorite dealer, or call us for upgrade information.

Superbase Professional 4

\$495.00

SUPERBASE®

Precision Software

8404 Sterling Street • Irving, TX 75063 Tel: (214) 929-4888 • (800) 562-9909 Fax: (214) 929-1655 Precision Software

Superbase is a registered trademark of Precision Software, Ltd. All rights reserved. Precision acknowledges all other trademarks herei

They also let you get at the musical power of your Amiga. In fact, AMOS and Blitz have a lot in common, and both have simple commands that allow you to:

- fade in and out
- access fonts
- horizontally scroll screen "slices"
- do double-buffering
- use the vertical blank for interrupt routines
- easily use all the Amiga display modes: HAM, Extra Halfbrite, dual playfields
- play background songs from an IFF song file
- move sprites and bobs (called "blits" in Blitz Basic) smoothly and rapidly around the screen

In addition, with Blitz Basic you can:

- grab any IFF brush and use it as a bob
- enable a genlock device
- slide notes up or down
- warble a musical note (VIBRATO is the name of the command)

AMOS has even more options (it ought to, considering its mammoth command vocabulary of more than 500 commands), some of which allow you to:

- create overscan, oversized, offset screens
- easily create up to 64 sprites at once (they're called computed sprites)
- produce stunning rainbow effects
- do all your sprite/bob moves during interrupts using AMAL, an entire interrupt-driven command sublanguage
- create windows in dozens of ways
- play sampled sounds easily as well as do simple and complex sound effects

To give you an idea how easily these effects can be implemented with AMOS, consider that you can cause a screen to fade out by merely entering: FADE 15.This simple command takes the current color palette and slowly (15 interrupts in this case) dissolves it to all zeros (black). By adding a few parameters, you can dissolve from the palette of one screen to that of another.

It should be apparent that these two programs are great at special effects. But how about "serious" (i.e., productivity or nonvideo) software? For Blitz Basic, the answer is no. Don't take my word for it, take M.A.S.T.'s: "[Blitz] is not recommended for people wanting to write applications software," says page 2 of the manual (italics mine). For those tasks, again from the manual, "Amiga Basic would be a far better choice than Blitz Basic." What? Amiga Basic?

AMOS is another story. It has all the commands necessary to qualify it as a serious development tool. Although this language was derived from an Atari ST version called "STOS: The Game Creator." French programmer, Francois Lionet, put so much more

power into AMOS that the publishers decided to drop the word "game" from the title so as not to limit anyone's concept of what AMOS can do. Smart decision. AMOS's menu commands are the best and the easiest to implement of any of these dialects, and it has 45 of them, compared with nine for the next highest competitor.

All the commands for modern structured programming are implemented in AMOS, including collapsible procedures, powerful control structures, and many interrupt-driven events. It competes well in string handling, arrays, math, and disk access (with an excellent file requester that you can use in your programs), as well as in overall speed. The speed comparisons are surprising, because AMOS is not a compiled language—although a compiler that should make it even faster is in the works. This should also solve the present run-time problem from which AMOS suffers. At present, you must include a special run-time software module (available from Mandarin for a nominal fee) if you want Amiga users who do not own AMOS to be able to run your programs. This module is basically the AMOS language without

Both Blitz and AMOS are fairly easy dialects to pick up. They come with colorful, lively documentation that is sometimes a bit lean on information (especially considering that they offer so many new commands), but is easy to read. The editing environment of each is equally friendly, with both programs sporting colorful screens and novel editing maneuvers. AMOS is the superior editor—it has so many ingenious editing tricks that one could write an entire article on that topic alone.

These two programs have broken new ground for BASIC programmers of the Amiga. Blitz can create great games; AMOS can create just about anything. They are not perfect (Blitz crashes frequently if you're not careful, and AMOS lacks a CONT [continue] command, of all things), but they have opened a door for Amiga programmers that all the other dialects will eventually have to walk through.

How do the members of the BASIC stable shape up now? We've walked through the barns, examined their conformation, and seen how fast they can RUN. As for which one is best for you, by now you have discovered that a lot depends on what your programming needs are. My top three choices are AMOS, GFA BASIC, and HiSoft BASIC Professional (in that order) because they fulfill my programming needs better than the others, and they do it in a friendly way. Your needs may be different, but no matter what they are, today it can be said with certainty that BASIC can meet them. BASIC may not win the Derby, but it's definitely going to finish in the money.

Mark Jordan is a high school English teacher and freelance computer writer. Address him c/o AmigaWorld, 80 Elm St., Peterborough, NH 03458.





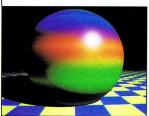








High quality RGB output for your Amiga



These images are completely unretouched photos taken from a stock 1084s RGB monitor using the basic HAM-E unit. They are pure RGB, not smeary composite.

The new HAM-E Plus is an even more potent yet virtually transparent, anti-alias engine which offers near photographic quality images on standard RGB monitors.

No other graphics expansion device offers so much performance and costs so little! And all the software to run it is free. Even upgrades!

There's not enough room to cover all the features of this system, so here's just a few.

SYSTEM FEATURES

- · Paint, render, convert and image processing software
- 18/24 bit "pure" modes
- 256/512 color register modes
- · RGB pass through
- · Screen overlay/underlay
- · Screens pull up/down & go front/back · View with any IFF Viewer

· Custom brushes use blitter

Extensive ARexx[™] support

· 10 Color Cycle/Glow ranges

· Area, edge, outline fill/overfill

· Anti-alias with any tool or brush

· Range pong, reverse, stop · Smooth zoom, rotate or scale

· Dithered 24 bit fill mixing

• RGB and HSV spreads

· RGB, HSV, HSL, CMY palette

- · Animate via ANIM or Page Flipping
- Works with DigiView™
- Completely blitter-compatible
- · NTSC encoder compatible · S-VHS encoder compatible
- · PAL & NTSC compatible
- · Uses only RGB port
- · FCC Class B. UL Listed
- · Works w/std Amiga monitors
- · Does not use Amiga power

PAINT FEATURES

- · Loads, shows GIF ™exactly
- · "C" source code available free · Upgrade from BBS 24 hrs/day
- · Color or 256 greys painting · 256 color stencils
- · Matte/color/anti-alias/cycle draw
- · Prints via printer device
- · Auto enhance std IFF palettes
- · Writes IFF24, GIF™ HAM-E





- 2 to 256 color standard IFF, half bright
- · HAM, DKB and QRT trace
- · RGB8 and RGBN
- · Targa
- GIF
- Dynamic HiRes™
- SHAM, ARZO, ARZ1, AHAM, 18 bit ScanLab™
 - UPB8 brushes
 - · All of the 12 different HAM-E format image file types
 - · Images may be scaled and converted to 24 bit IFF files



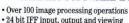
384 × 480 Pixel Output (NTSC) 384 × 560 Pixel Output (PAL)

HAM-E PLUS™ 429.95 768 × 480 Pixel Output (NTSC)

768 × 560 Pixel Output (PAL)

[All software works with either unit]

NEW IMAGE PROFESSIONAL™ THE MOST IMPORTANT 24 BIT IMAGE PROCESSING GRAPHIC SOFTWARE EVER CREATED FOR THE AMIGA



- · Any number of named image buffers
- Image sizes to 32767 × 32767 pixels
- · 24 bit blending, clipping and compositing
- · Apply any function using paint-like tools: Freehand, Rectangle, Ellipse, Polygon,
- · Full 24 bit undo, redo and isolate
- · Displays in 24 bit, 18 bit, 256 color, or 256 grevscale
- · Blended Merge and RubThru in many ways: Color-keyed, minimum, maximum and direct
- · 24 bit warping, shading, rotation, geometric distortions and scaling
- Extremely intuitive, easy-to-use interface

*ALL SOFTWARE INCLUDED AT NO EXTRA COST WITH EVERY UNIT



Broadcast

Images







Call (406) 367-5509 for more information. 398 Johnson Rd., Giasgow, MT 59230 SALES: (800) TK-AMIGA International Sales (406) 367-5513 BBS: (406) 367-ABS FAX: (406) 367-ABS



#29

A continuing series
of tips, techniques,
and tricks for
creating more
imaginative Amiga
graphics.



Follow the Bouncing Ball

Maybe because it was the July issue, Joel might have been thinking of blue skies, sunny shores, Fourth of July cookouts, and other simple summertime diversions. Maybe he even picked up a beachball, tossed it in the air, watched it bounce playfully a few times, and suddenly it came to him.

...ALL YOU HAVE to do is press a key on your Amiga and a ball on the monitor bounces toward you, then rebounds off the screen. It's as simple as that! And creating this sequence will not only be a good introduction to the use of DeluxePaint III's (Electronic Arts) Move requester, but it will also provide a great way to show off the Amiga's (and your own) animation capabilities. Once you have gone through the sequence a few times in private, you can create the finished animation before an audience in less than five minutes.

To follow my example, work in any resolution and create a palette with a spread of three or four blues from light to dark. Make a light-brown background color and a darker brown for the ball's shadow. Set one of the palette Ranges to the spread of blues so that you can use them to make a contour gradient-filled ball with the Filled-Circle tool.

Pick up the ball as a brush and clear the screen to light brown. From the Anim menu, select Frames/Set # and enter 10. This creates 10 blank frames of the background color. Using the 1 and 2 keys, try rolling forward and backward through the frames. The frame number is displayed in the left corner of the menu bar. Go to frame 1 and stamp the ball down near the top of the screen.

From the Anim menu, select Move, which brings up DPaint's Move requester—a powerful animation program in its own right. By entering numbers to represent distances and angles, you can control automatically the movement of a brush across a series of frames. Horizontal movement is referred to as distance on the X-axis, vertical movement as distance on the Y-axis, and apparent movement

into perspective space as distance on the Z-axis.For the ball to drop from the top of the screen to a point close to the bottom, enter a distance for Y of about 160 in low resolution or 320 in high resolution.

Click on Preview to test the results of your settings. You should see the ball or a box representing the ball drop frame by frame to a point near the bottom of the screen. The first (left-most) of the three ball-drop paths in the central part of the accompanying illustration is a representation of this path. If your ball goes up instead of down, change the distance to a negative rather than a positive number. Whether down is a positive or negative Y value depends on your "Original" setting in Prefs.

If everything appears satisfactory, click on Draw. When all frames are rendered, exit the Move requester and press the 6 key to play the animation in "ping-pong" mode, back and forth. Adjust the speed with the Cursor Left and Cursor Right keys. To stop the animation, press the space bar.

You will notice in the animation that there is no feeling that the ball is obeying the laws of physics. It simply oscillates up and down, instead of accelerating toward the ground. To solve this problem, clear all frames, stamp the ball again on frame 1, and return to the Move requester. This time, enter a number in the Ease Out box equal to the number of frames. Preview your results again and then click on Draw to render the new animation. Now the ball path is like the second (middle) representation in the illustration. Play it again in ping-pong mode with the 6 key.

ANYONE FOR SOUASH?

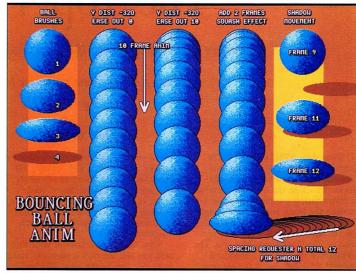
To make the animation even more effective, you can create the illusion that the ball "squashes" before rebounding from the ground. Go to the

Using DeluxePaint's Move requester and a few tricks, you can add a little 'bounce' to a nifty animation demo.

last frame and select Frames/Add Frame from the Anim menu. Doing this creates a duplicate of frame 10 as frame 11. Use the same tool again to create frame 12. Go to frame 11 and use the Brush tool to remove the ball from the background. Press SHIFT-Z to stretch the brush with the mouse. Squash the ball a little, roll back to frame 10, and register the bottom of the ball to the bottom of frame 10's ball. Now roll forward again and stamp the ball on frame 11. Do the same on frame 12 with slightly more "squash." The sequence now resembles the third (right-most) ball path in the illustration.

Use the Ellipse tool with the darker brown color to create a cast shadow as shown in the illustration. From the Effects menu, use Make Stencil to lock all colors except the light-brown background color. Pick up the shadow as a brush and select the Straight-Line tool with the right mouse button to bring up the Spacing requester. Select N Total and set the number to 12, the number of frames.

With a little dexterity at the keyboard, you can lay the shadow into each frame. First, while holding down the left Amiga key (DPaint's Animpainting key), roll to the last frame. Still holding down the key, place the shadow off to the right of the ball and depress the left mouse button. Drag the shadow under the ball as shown on the right side of the illustration. The stencil keeps the shadow behind the ball. Without releasing either the key or the button, roll ahead to frame 1 of the animation. Now release the mouse button while keeping the Animpainting key depressed. The shadow will advance toward the ball through the 12 frames. You could



The "BallPage" illustration above shows the various ball and shadow brushes and the several movement paths for ball drops and shadows described in the article.

have used the Move requester to do this, but it is good to learn these manual tricks.

To make the ball bounce in from the distance, select animbrush/Pick Up from the Anim menu. Drag a box around the area of the screen that will be occupied by the ball and shadow during the 12 frames and pick up that animbrush. From animbrush/Settings, select <->, the ping-pong icon. Now delete the entire animation, clear the screen, and, after selecting Frames/Set #, enter 60 for a longer animation in which the ball will bounce several times.

Roll to frame 60, stamp the animbrush near the left of the screen, and click on Undo. The computer will remember this location. In the Move requester, set Ease Out to zero, set the Z distance to -1500, and experiment with X and Y distances. Select the Target icon that has the arrow pointing toward the target dot. This moves the ball toward the position you set on the last frame. Again, click on Pre-

view and then Draw. Play with the 6 key to see the ball bounce in from the distance and then rebound from the screen as it ping-pongs back. These basic techniques should equip you to try a multitude of experiments.

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sauyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.





The Top Ten

To ensure we're all speaking the same language, our first

column defines some common terms.



By Joel Tessler

- 1. What does NTSC mean? NTSC stands for the National Television Standards Committee, which was formed back in the 1950s to develop a transmitting standard for color-encoding the black-and-white TV signal. The standard had to work not only on the then-new color TV sets, but also on the black-and-white sets. The committee established a standard named RS-170A, but it is now commonly referred to by the abbreviation of the committee's name.
- 2. What is RS-170A? The RS-170A standard details the video signal's timing parameters—burst amplitude, breezeway duration, set-up level, vertical scanning frequency, and more. For a more technical discussion, see "The NTSC/RS-170A Standard," p. 30, The AmigaWorld Tech Journal, June/July '91.
- 3. Why do my video graphics shake? An NTSC color television picture is actually composed of 250-325 horizontal scan lines that lie close enough together to create a picture. The picture information enters the screen from the top left corner and "prints" all of the odd-numbered scan lines (1,3,5,7, and so on). When it reaches the bottom of the screen, the picture information for the even-numbered lines appears, again going from top to bottom and left to right. This process (the display of odd and even lines) happens 60 times per second and is known as interlacing.

To illustrate how interlacing can

make your image twitter, let's create a "shaky" situation in DeluxePaint III (Electronic Arts). Enter hi-res mode and select the Rubber Band Tool. Next, click the left mouse button and, holding it down, drag it to the right until you have a straight, four-inch horizontal line.

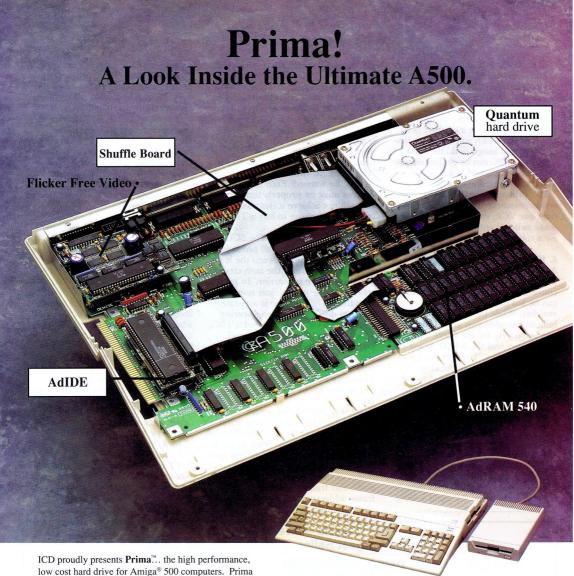
Now, take a close look at your line and you will see that it seems to jump from one line to the next and back. Copy the line and stamp it down directly above the original one, making sure that there is no space between the two. The resulting line, which is twice as thick as the original, is not shaking as much. Add one more line; the shaking almost disappears. It seems that anything less than two scan lines wide shakes badly in NTSC. When you prepare graphics for use in video, make sure that horizontal lines are at least two or three scan lines thick.

4. What is sync? Divided into many parts, the sync signal is the portion of a video signal that coordinates the signal of the transmitter (a VCR, for example) with the receiver's (TV's) delay. The sync signal's horizontal blanking region tells the monitor or TV when to start "printing" the next scan line. The vertical blanking region tells the "printing" gun to shut off and return to the top left of the screen to start the next field. Also included with sync is the subcarrier, or color, information. House sync, or what is sometimes called blackburst, is the reference that is fed to all the

video sources to time the system. With the system properly timed, you can make clean switches and edits between two or more sources.

5. What is a TBC? It is easiest to describe a Time Base Corrector (TBC) by explaining why it is necessary. Videotape is an amazing medium. Unlike film, which has to be processed and developed before it can be viewed, videotape can be replayed immediately after it has been recorded. This "instant" medium, however, is very complex. Inside of a videotape recorder, a pinch roller pulls the tape around a spinning drum-supposedly at a specific speed. Supposedly, I say, because velocity errors are always a possibility: The slightest deviation in either the drum rotating speed or the speed of the pinch roller can result in skewing or picture jitter. To compound that problem, no VCR without a built-in TBC can produce a signal sufficiently stable to properly sync with another video signal. Obviously, this is a breeding ground for disaster! What can save us? A TBC.

A TBC strips off the sync portion of the video, which tells the monitor how to lay down the scan lines. It then stores the video in memory and, at the output, lays down corrected sync that makes the video stable enough for broadcast standards. Some TBCs have processing controls to adjust the set-up level, video and chroma gain, and chroma level. Depending on its memory, a TBC can also freeze a frame of video.



ICD proudly presents **Prima**... the high performance, low cost hard drive for Amiga® 500 computers. Prima blends a large capacity, low power Quantum hard drive with the **AdIDE** host adapter for an unbeatable combination.

Prima replaces the internal floppy drive but includes Shuffle Board™ to make your external floppy drive DF0:. Prima features auto-booting from FastFileSystem partitions, high speed caching, auto-configuring, and A-MaxII™ support. Formatted capacities of 52 and 105 megabytes are currently available.

Prima comes complete with instructions, software, and all the hardware necessary for a simple, clean, no–solder installation. It does require an A500 with switching power supply, 1 megabyte of RAM, and an external floppy drive for setup and installation.

What other products would we include in the "Ultimate A500"? Of course a four megabyte AdRAM™ 540 and Flicker Free Video™ with a multi-sync monitor. Why settle for less?



ICD, Incorporated 1220 Rock Street Rockford, Illinois 61101 USA (815) 968-2228 Phone

(800) 373-7700 Orders

(815) 968-6888 FAX

Most TBCs today have an infinite window and can hold a full frame of video; others have only enough memory to store 16 scan lines. Dual-channel TBCs accept two inputs and allow you to switch between them-using effects, if you wish-just like a switcher (a device through which you can send, manipulate, and assign multiple video signals). A TBC can be genlocked (see Question 6) or timed to a switcher, so that it can be used as an input. A TBC's primary function, however, is synchronization. If you are using more than one VCR, you will need a TBC to make switches and edits. Stay tuned for a roundup of TBCs next month.

- 6. What are genlocks and encoders? An encoder takes the computer output, RGB or component video, and converts it to composite video that can be fed into a VCR or video switcher. While the Amiga 1000 has a built-in encoder, you must purchase one separately for the A500, the A2000 line, and the A3000. Some encoders include a "key" output for input to a switcher. A genlocking encoder (or genlock) times the computer to the video system, allowing you to overlay Amiga graphics on incoming live or prerecorded video.
- 7. What is A/B roll editing? A/B roll editing is the process of combining video frames from two source VCRs (called A and B) into a single continuous segment—just like cutting and pasting paragraphs from two memos into one new letter. By using a video

switcher or a digital effects unit (such as NewTek's Video Toaster) you can do dissolves, wipes, squeezes, zooms, fly-ins, and other transitions between video A and B. (After all, cut-to-cutstyle linear edits are not the most exciting way to look at video.) The A segment's duration is preset with a marked "out-point," and at the given time, an effect (such as a dissolve) is "triggered" to affect the second source. Be warned: Each of your sources must be properly timed, or you will not achieve a clean switch (yet another reason to buy a TBC).

- 8. What is SCH phase? The SCH (Subcarrier-to-Horizontal) phase is the timing relationship between the leading edge of sync and the zero crossing of the reference subcarrier. To properly time your system, you must ensure that its SCH phase is accurate. No, you don't need an engineering degree to do so. You do need a TBC, which ensures that the horizontal blanking and the subcarrier frequencies are synced to each other. In a sense, you already adjust subcarrier frequency every time you tweek the tint or hue knobs on your TV.
- 9. What is SMPTE time code? SMPTE time-code is a timing pulse laid down on the tape's audio channel or a dedicated address track as the recording is being made. It assigns specific times (or addresses) to each frame of video in hours, minutes, seconds, and frame numbers. These frame addresses will remain the same

regardless of the playback machine. To simplify the editing process, you can make an edit decision list of the start (in) and stop (out) points of the various segments, based on their time-code addresses. If you have the appropriate equipment (such as MicroIllusion's TCRG 102 Time Code Reader/Generator and Edit Decision List Processor software or RGB Computer & Video's AmiLink editing system), you can automate your edit session using the edit decision list and time-code signals.

10. What is Y/C? The Y, or luminance, is the portion of the video signal that contains the black-and-white contrast information. The chrominance, C, portion contains the color information. In combination, the two create colored video. Caused by a timing problem between the source and the destination, Y/C delay occurs when the color and the contrast portions do not match, resulting in color bleed. You can adjust this on most TBCs. The S-VHS standard processes the Y and C components separately to avoid cross-luminance and crosschrominance artifacts such as chromacrawl and bleeding. Keep in mind, however, that the same artifacts can occur when you're dubbing your S-VHS tape back to standard one-inch, 3/4-inch, or VHS tape. ■

Joel Tessler is a video and animation consultant to several cable stations and networks. Write to him c/o AmigaWorld, 80 Elm St., Peterborough, NH 03458.

The Experts — We Speak AMIGA World's Largest Seller of Amiga Specific Chips

SPECIAL PURCHASE

1 x 8 - 100ns SIMMS

\$45.95 ea.

128 x 8 Modules S-RAM For MegaMidget Racer \$34.95 ea.

Exclusive at Memory World

Wholesale & Retail

APO / FPO, AK & HI, FOREIGN FAX or Call for Shipping Charges

TURBO ACCELERATOR

HACK KIT ONLY \$40.00 68000 16 mhz

32K Buffer Chip

KX-P1092i, KX-P1524, KX-P1124 KX-P1180, KX-P1191, KX-P1624 KX-P1695 for Panasonic Printers for \$50.00

Only \$20.00 w/instructions Memory Board **HP Laser Board** 1 meg-\$99.00 2 meg-\$147.00

4 meg-\$209.95 Call for memory boards on other brand printers

MEMORY WORLD Street Rd. & Bristol Pike Plaza II, Suite 134

Bensalem, PA 19020 Attn: Amiga Dept.

AMIGA 1000 Memory

IN 1000 by Spirit Internal 1/2 meg \$229.00

XRAM by Spirit External 2 meg-\$309.00 expandable to 8 meg

A3000 Memory

1 x 4 -80 \$32.95 ea. Static Column Zips 1 x 4 DIPS — Call

215-244-7930 FAX 215-244-7932 Add \$3.00 S/H Add \$4.00 COD

Visa / MC / Check / COD

The Speed Shop At Memory World

CSA MegaMidget Racer 68030 20 mhz......450.00 68030 25 mhz......575.00 68030 33 mhz......675.00 All of the above with MMU

RAM & Math Chip Additional **GVP Accelerators**

In Stock **GVP Accelerator Memory Cheap!**

\$599.00

GVP A500 52 meg Hard Drive

\$179.00

A2000 Memory Brd Series II Impact w/2 meg



- ☐ YES IT'S TRUE!! SYNCRO EXPRESS IS A HARDWARE/SOFTWARE SYSTEM THAT WORKS WITH "DIGITAL IMAGE COPYING". THIS IS THE METHOD THAT COMMERCIAL DUPLICATORS ACTUALLY USE TO MAKE THE ORIGINAL FROM THE MASTER DISK. DATA IS TRANSFERRED AS RAW DIGITAL INFORMATION.
- UNMATCHED PERFORMANCE!! It's hard to draw comparisons between Syncro Express and old fashioned Disk Copiers. Because they use parameters, they are almost guaranteed NOT to copy your latest purchase since parameters are not made available until several months after the release. But with the Syncro Express image copy method you can get a backup of all the latest programs, including blockbusters and utilities, quickly & easily. Start protecting your software investment NOW!!
- Menu Driven Control Program couldn't be simpler!! Select Number of Tracks, and that's it!! Don't be mislead by outrageous claims for "Nibbler" programs. This system can guarantee success by using the very Hardware/Software techniques that made the original!!
- Now with a SUPER POWERFUL "SYNCRO" MODE that actually synchronises your Disk Drives for even greater
- Can be switched OUT when not in use totally transparent.
- Make up to 2 copies simultaneously*.
 At least one External Drive required.

PLUS MANY NEW FEATURES INCLUDING ...

- DRIVE SPEED CHECKER now you can check the speed of your drives - DFØ-DF3. Easy and very accurate.
- ☐ DISK TOOLKIT Syncro III now includes a range of Disk Tools Fast Format, File Copy, Hard Drive File Copy, Ram Disk, Disk Rename etc. etc.

Why will Syncro Express succeed where others fail?

Some programs now have very sophisticated protection including long tracks, Incryption, etc. But remember, whatever the programmer comes up with, the disk then has to be commercially duplicated. That's where Syncro Express beats all others - it transfers data at MFM/TTL level, just like the

POWER BY DESIGN

Syncro Express is designed in Europe where "Digital Image Copying" is the present sensation. This device, with it's own custom chip, goes even further by offering a complete system for under \$70!!







DAS BOOT

By John Ryan

In war, the pressure can kill you. With Three-Sixty Pacific's new submarine simulation, Das Boot (\$49.95), the pressure comes somewhere around 200 meters below the surface-crush depth, a submariner's worst nightmare. Based on the novel (and film) of the same name, Das Boot (The Boat) attempts to recreate the risks that were inherent in World War II U-boat operations. You'll experience crush depth more often than you'd like. You'll listen to rivet-popping pressure grow on the hull and hear metal scream. You'll brace yourself as enemy depth charges and mines explode.

Like other submarine simulations, Das Boot's systems are operated from various control rooms. In the Radio Room, you can send and receive messages. Here you can radio in the results of missions and receive further orders. The messages you can send are limited to your current situation, but you can also request resupply ships and permission to withdraw from an area.

You'll find the periscope in the Control Room, along with the rudder and diveplane controls. Depth and speed gauges and the compass are also here, plus the diesel and battery indicators. The Navigation station is where you spend a lot of time setting in waypoints and generally trying to



Your view from the navigation station.

avoid running into anything but open water. If the diesel fumes starting getting to you, the conning tower and deck-gun stations offer fresh, albeit dangerous, air. All of Das Boot's selectable controls are embossed gadgets, and messages and control information can be clicked away once you read them.

Das Boot also offers great flexibility of view. You can command a 360-degree view at the periscope, gun, conning tower and binocular stations. Likewise, external cameras provide the means to view your sub from any angle, whether the sub is submerged or running on the surface.

Before you tackle the missions, enter the Baltic Training scenarios. You won't survive the first encounter if you don't. You'll learn how to skirt underwater mine fields, make torpedo runs, go head-tohead against subs, man the deck gun as enemy dive bombers attack your surfaced boat, and more.

The graphics are very good, but the sound (fully available with one megabyte of RAM) is the hallmark of this game. The digitized sounds of torpedoes running, explosions, droning aircraft, and water rushing by your hull are riveting.

I must, however, qualify my high praise for the program: Das Boot is a dog on a 7 MHz machine. True, you can adjust the world detail to help speed up matters, but I still found the sub's response sluggish in the heat of battle. You might want to consider an accelerator board.

Thankfully, Das Boot is not copy protected and ►

Crib Notes

By Peter Olafson

You'd think present-day wars would be more than enough to keep people's minds occupied. But Future Wars (Interplay, \$49.95) commanded a healthy share of this month's reader mail. So what could I do for our troops at the front (of their Amigas) but dig them a nice little foxhole?

• For starters, some people are in that little room with the keypad-controlled door and the very interesting descending ceiling. If you took a really close look at the type of stuff in the office you just left, you should know what to punch in.

Once through the door, you'll find a machine, which some readers are having trouble running. You just have to do things in the right order. Put papers in the slot first, and I'll let you figure out which button to press next.

Getting the monk's robe down from the tree in the woods is another sticking point. You'll need special equipment, and obtaining it is mainly a matter of making all the right stops first. On the first visit, you can't do much more than glare at the robe and shake the tree. The shaking does free a coin, however. The coin buys a seat at the inn. Table talk overheard at the inn appears to trigger your access to the castle (if you flash the right object). When you leave, the lance belonging to the guard-now asleep-should finally help you get the robe. This requires some experimentation, but you'll eventually find the right spot to stand.

If you take a close look, you'll see that the wolf guarding the monastery entrance has a weakness. He's electric, and electricity and lake water don't mix. You can pull the same trick on him.

The basement in the monastery is still giving folks big trouble, sò ▶

To locate developers of the games reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 96.

A source of technical information for the serious Amiga professional.

Introducing The AmigaWorld Tech Journal, the new source to turn to for the advanced technical information you crave.

Whether you're a programmer or a developer of software or hardware, you simply can't find a more useful publication than this. Each big, bimonthly issue is packed with fresh, authoritative strategies and advice to help you fuel the power of your computing.

Trying to get better results from your BASIC compiler? Looking for good Public Domain programming tools on the networks and bulletin boards? Like to keep current on Commodore's new standards? Want to dig deeper into your operating system and even write your own libraries? Then The AmigaWorld Tech Iournal is for you!

Our authors are programmers themselves, seasoned professionals who rank among the Amiga community's foremost experts. You'll benefit from their knowledge and insight on C, BASIC, Assembly, Modula-2, ARexx and the operating system—in addition to advanced video, MIDI, speech and lots more.

Sure, other programming publications may include *some* technical information, but none devote every single page to heavyweight techniques, hard-core tutorials, invaluable reviews, listings and utilities as we do.



Every issue includes a valuable companion disk!

And only The AmigaWorld Tech Journal boasts of a technical advisory board comprised of industry peers. Indeed, our articles undergo a scrupulous editing and screening process. So you can rest assured our contents are not only accurate, but completely up-to-date as well.

Plus! Each issue comes with a valuable companion disk, including executable code, source code

The AmigaWorld

TECH JOURNAL

and the required libraries for all our program, examples-plus the recommended PD utilities, demos of new commercial tools and other helpful surprises. These disks will save you the time, money and hassle of downloading PD utilities, typing in exhaustive listings, tracking down errors or making phone calls to on-line networks.

In every issue of The AmigaWorld Tech Journal, you'll find...

- Practical hardware and software reviews, including detailed comparisons, benchmark results and specs
- Step-by-step, high-end tutorials on such topics as porting your work to 2.0, debugging, using SMPTE time code, etc.
- The latest in graphics programming, featuring algorithms and techniques for texture mapping, hidden-line removal and more
- TNT (tips, news and tools), a column covering commercial software, books and talk on the
- Programming utilities from PD disks, bulletin board systems and networks
- Wise buys in new products—from language system upgrades to accelerator boards to editing systems and more.

The fact is, there's no other publication like *The AmigaWorld Tech Journal* available. It's all the tips and techniques you need. All in one single source. So subscribe now and get the most out of your Amiga programming. Get six fact-filled issues. And six jam-packed disks. All at special Charter savings. Call 1-800-343-0728 or complete and return the savings form below-today!

To order, use this handy savings form.



200	01	art	12 (22)	0	•	Belle State		
		art	Or	100	7111	TC	HO	TTY
220		(4141		9 (B		-45 B	RL V.	, , ,

Yes! Enter my one-year (6 issues, plus 6 invaluable disks) Charter Subscription to The AmigaWorld Tech Journal for just \$69.95. That's a special savings of \$25.75 of the single-copy price. If at any time I'm not satisfied with The AmigaWorld Tech Journal, I'm entitled to receive a full refund—

Account No. __

☐ MasterCard ☐ Visa ☐ Discover ☐ American Express

_ Exp. Date _

Satisfaction Guaranteed!

Or your money back!

Canada and Mexico, \$74.95. Foreign surface, \$84.97. Foreign airmail, \$99.95. Payment required in U.S. funds drawn on U.S. bank.

Complete and mail to: The AmigaWorld

Tech Journal P.O. Box 802, 80 Elm Street Peterborough, NH 03458 AWC7916

For faster service, call toll-free 1-800-343-0728. may be installed on the hard drive. It plays quickly (as far as moving from station to station), and the learning curve is not as bad as it may at first appear. The manual is laid out well and sprinkled with interesting historical tidbits. You'll even find the novel and a

special offer for the movie bundled with the software. If you like submarine simulations, Das Boot is the best of the lot.

here's an outright answer. You need to use the remote control on the wine barrels in the cellar. One of them will open.

The future looks bleak, doesn't it? Rubble everywhere, and not a Flintstone in sight. This is one of several scenes where you'll need to check out every little bump under the rug. Don't leave until you find the blowtorch and fuses. And you can't leave until you find the manhole. (It's in the right screen.)

The manhole leads to the sewers, natch, and the sewers lead to a grotesque sewer creature who's saying his very special kind of hello to a mommy and her child. You have just the weapon to play hero—and the ammo, if you've been watching the pipes on the walls—but using it requires some special tactics. (You'il want to save the game and experiment with the distance at which you open fire.)

A lot of folks are stuck in the Crughon jail cell, and they're all missing one thing or another. One is the rather difficult-to-pick-out item on the floor of the hidden monastery room in which you found the princess. There's also a key to opening the grate (an item you should have had almost from the beginning), and you'll need something to cover it once it's open so your escape plan doesn't blow back in your face. The newspaper machine in the subway station does work. Persevere. In buying a newspaper, haven't you ever had your coins trickle into the return slot the first time through?

The spot where most people seem bogged down is the escape from a totally different Crughon ship once it's landed at the allen base. You're not going to get very far if they can eavesdrop on you—notice the camera up there?—so first put the clothing you found in the suspended animation chamber to good use. Now you can take a nap.

When you wake up, move over to the back wall near the door, as quickly as you can. Time is of the essence. As the door opens, pop the invisibility pill you found on the princess and, once the guards have cleared the door, get out of there.

You're not in the clear yet. That pill's going to wear off soon, so ▶

BANE OF THE COSMIC FORGE

By Peter Olafson

The sound is primitive. The graphics are more EGA than Amiga. The speed is. . .well, I've seen eight-bit games move faster. So, why am I having so much fun with Sir-Tech's Bane of the Cosmic Forge (\$59.95)? Because, despite those shortcomings, this sixth Wizardry scenario-the first on the Amiga-is an absolutely splendid dungeon role-playing game. Its rewards are great, and its promise is immense. Bane is the first of a projected

The cosmic forge is a magic pen with the power to bring into being what it writes. Naturally, a bad king and a bad wizard got hold of it, made liberal use of it and had a falling-out over it. They've disappeared, and the king's castle stands empty (sure it does), which is where your party of six comes in.

Graphically, Bane is closest to games like The Bard's Tale: A central three-dimensional window is framed by portraits of your six characters and has a text window beneath. In terms of depth and cleverness, however, nothing comes close to it. Among Bane's virtues are four al-

ternate endings, elaborate skills development, some very sneakily designed sections (mapping is a must), nicely logical yet damnably difficult puzzles, a pair of delightful and almost invisible quick-reflex games for door forcing and lock picking, a vast interlocking environment, and even a text parser for talking and trading with characters.

While there's a good deal of the usual monster meat for hacking, it's not excessive for a game of this type, and you can gain experience point bonuses for solving puzzles. The layout is a sprawling tangle of castle, dungeon, mountain, tomb, and swamp.

I do have a few quibbles. The stone walls, with little but candles and occasional niches to distinguish them, do get tiresome after a bit. The character-creation scheme can't be abandoned until it's complete. You can save only one game at a time, and inventory management is clumsy. Let's face it: In purely technical terms, Bane is distinctly a first effort, and the artwork is grainy.

The larger monster animations can slow Bane down to throw-up-your-

hands-and-walk-away speed. Even typing a spell name in the copy-protection sequence seems slow. (One plus: Bane does multitask on Amigas with more than one megabyte of memory.) Take heart, however. Designer D.W. Bradley assured participants in a recent GEnie conference that the graphics routines are being overhauled for the sequel so as to use the Amiga's power.

The sound quality is decent, but the sounds themselves are purely decorative, and they're not even well chosen decorations. Some character classes enter encounters to gabbling that sounds like a call to order at the Village of the Damned's town meeting. The death scene is accompanied by a sound doubtless intended to be a moan, but it seems much more like a moo.

Nevertheless, I have to recommend Bane. This is one instance in which a good game is simply a good game—regardless of how it measures up to the specs of a particular computer. Dungeon Master, look behind you. There's a new longsword in town, and its name is Wizardry.

BLUE MAX

By John Ryan

After all the high-tech fighting in the Persian Gulf, it's nice to step back to basics if you consider it basic enough to get blown out of the sky in a Fokker biplane. Blue Max, Aces of the

Great War (Three-Sixty Pacific, \$49.95) faithfully recreates the excitement, danger, and fight-or-die atmosphere that surrounded the air war during the last stages of World War I. Choose from one of eight authentically detailed fighters, each burdened with its ►

IN 1972, AN ELITE AIR CORPS FLEW OVER VIETNAM. FLY WITH THE BRAVE LAOS

Feel the adrenaline kick in as you scream down the carrier runway. You're up! And so is your squadron of F-4's. Now nothing can stop you except the deadly fire from those MiG 21's, SAMs and anti-aircraft flak.

Experience the raw emotion and harrowing danger of intense air combat over North Vietnam in this simulation based on Stephen Coonts' bestselling novel, Flight of the Intruder. Authenticated by Vietnam pilots who flew in the

> Linebacker Campaign of 1972, you won't find any other simulation so

like the real thing. Select from multiple missions or map out

your own

using the mission creator. Control up to eight air-

craft dur-

Off you go to adventure, danger nd excitement.



in on the MiG, before he zeros in on you.



Mission accomplished! Now back to Yankee Station to plan your

ing one mission (four A-6 Intruder bombers and four F-4

Copyright © 1986 Stephen P. Coonts. All Rights Reserved.
Flight of the Intruder and Spectrum HoloByte are trademar of Sphere, Inc. Other products are trademarks of their respective holders.

Phantom fighter interceptors.) Switch from the A-6

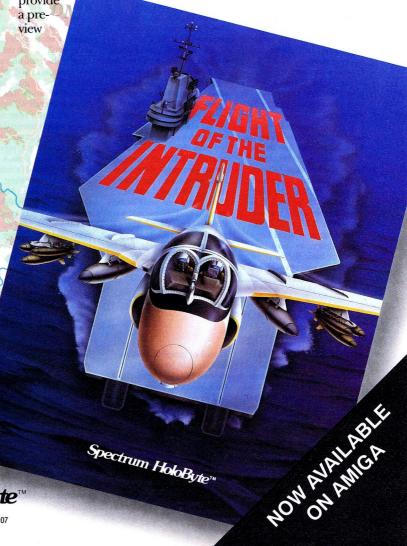
to F-4 cockpit anytime. U Thirty-four different targets provide new challenges every time you take to the sky. Aerial

photos provide a preFLIGHT OF THE INTRUDER PAPERBACK INCLUDED

of the target zones. For contin-

uous challenges, choose from 16 variables to determine the level of difficulty. Get Flight of the Intruder™ now and watch for the full-length motion pic-

ture coming this summer.



Spectrum HoloByte™

A Division of Sphere, Inc. 2061 Challenger Dr., Alameda, CA 94501 (415) 522-0107 Circle 49 on Reader Service card.

own peculiarities and constraints. You'll find the Fokker DR I, the Albatross, the Spad, and the Sopwith Camel, among others. Learn their different handling capabilities quickly if you want to live past your first mission.

Missions are what this combat simulation is all about, and you can fly them alone against the devious machinations of your Amiga, or head-to-head against (or in concert with) another player. The oneplayer mode offers all the flight options you expect from a first-rate simulation. You can view the world around you in a full 360 degrees and invoke external cameras to view your flight from just about any angle. Moreover, a VCR function can record your entire flight so that you can play back and study how well you crashed on the last mission.

Two-player mode splits the screen into two sections. I didn't try out this mode with another player, but there is a peculiar circumstance that may arise here: Only one of you can use the mouse or joystick. The other player must use the keyboard. This could get confusing, as several keyboard functions must be used for basic flight. (I envision two players with



It was good enough for Snoopy; is it your choice?

knotted fingers, vying for the acceleration key.)

Blue Max hosts a bevy of flight and environmental options, as well. The weather, wind, world and cockpit details, and realism of the simulation are all easily changed. One unusual option is strategic game play. This aspect works almost like a board game; you must plan your pilot's moves on a hexagonal grid. Here, you don't actually fly the airplane. Instead, you must direct aircraft around on the board, then sit back and watch them carry out your orders in a three-dimensional window in "real-time." You can develop a serious case of nerves in this mode, for you must act within certain time limits.

Whether you choose to fly single missions or take part in larger campaigns, there's a lot to see and do in this game. Unfortunately, the most you'll see in the beginning is the ground rushing toward you at 100 miles an hour. While controlling the aircraft is rather basic, the enemy aircraft will give you fits. Often you may not know which particular aircraft is firing at you. Once you figure it out, you're already in a fiery mass of twisted metal. It's infuriating. Keep practicing.

All in all, Blue Max is a thoroughly enjoyable (noncopy-protected) game. Great sound, music, animation, and hard-drive installation make Blue Max an ace of a combat flight simulator.

you want to get out of sight as soon as possible. Once outside the ship, that means down and to the left, behind those crates. One particular crate might even be worth taking a closer look at.

• There's a handy way to unblock a blocking lemming in Lemmings (Psygnosis, \$44.99). Basically, you need to make him lose his footing. "Tricky" level 19 seems to be a major stumbling block in that game. You'll need to turn your first lemming into a climber, and have him bridge the pit at the right end of the level. Once he's started the bridge, jack up the flow of the lemmings to full. This will create an almost solid block of green hair in the entry area, but there should be a handful of better spaced-out lemmings walking just ahead of them.

Here's the tricky part. Pick a lemming about four ahead of the pack and turn him into a climber. When he's climbed the little step, turn him into a vertical digger and then almost immediately into a horizontal digger. This will allow the great majority of trailing lemmings to walk over the lowered "step" he's created and escape. (They should reach it just when it's ready for them to walk over.)

But what of our little friend the horizontal digger, and what of the spaced-out lemmings who were too late to cross the lowered step? Well, once the digger hits the bottom of the pit, he'll go back to being a climber and find his way out. If you've run this right, you should have just enough climber assignments left to take care of the rest of the crew.

· Some folks are stuck on the brink of the chasm that separates the dungeon and the mountain in Bane of the Cosmic Forge (Sir-Tech, \$59.95). The women who fled from you in this region should have given you a clue. It's a twopart solution: You'll need a rope and a grapple to connect her by. The rope can be had up in the belfry (provided you have the bell key and a good sense of your bearings) and the grapple in the Captain's Den. (For that, you'll first need to get the password from Queequeg-by hook or by crook-

Continued on p. 55.

THE LOST PATROL

By Peter Olafson

The war many would like to forget has inspired a computer game that's eminently forgettable. The first Amiga game based on the Vietnam War, The Lost Patrol (\$49.95) isn't a war game per se. This offering from England's Ocean (distributed in the US by Electronic Arts) is actually more in line with Cinemaware's

brand of graphic adventure/arcade hybrids: a twisted jungle path laden with joystick cables.

The scene is 1966. Seven survivors of a helicopter crash are trying to find their way through enemy territory to the nearest US base. In the way are Viet Cong patrols, snipers, minefields, closed-mouthed villagers, and booby traps. Most of the game is carried out from a sideways-scroll-

ing overhead map where you set direction and speed, scout the surrounding terrain, rest, set traps, and dole out food. With each move, you're shown a picture of the region the party is passing through.

The five arcade sequences are triggered as the party moves cross-country, and, with one exception, they're rather uninspired. There's simply



POWER COMPUTING

AMIGAPC880 POWER DRIVE



DUALDRIVE

A 5 0 0 A N T I - C L I C K B O A R D

- The famous Amiga Power Drive
- · Slimline metal case with thru' port & switch

Built-in PSU - doesn't use power from the Amiga

· High quality drive mechanism

Two drives in one case

· High quality drive mechanism

· Metal case with thru' port & switch

\$119

\$199

BLITZAMIGA



- · Back-up your disks at lightning speed
- Copies from the internal to the external drive
- Back-up an Amiga disk in around 40 seconds
- Copies up to three external drives at once
- Works on Amiga 500 or 2000

\$49.95

POWERSCANNER

- Top quality Amiga Handscanner
- · Complete with necessary software

\$299

POWERMOUSE



- Top quality mouse with smooth Naksha mechanism
- Microswitch buttons for precision use

\$38

256 x 4 DRAMS \$8.95

1MBx1DRAMS \$8.95

1MBx8Simms \$65

Simple internal fitting
 512K RAM clock card ONLY

· Stops the annoying internal drive click

512K RAM card without clock ONLY 1.5MB RAM Clock card A2000 Internal floppy drive A2000 8MB Board fully populated



\$69.95 \$59.95 \$199.95 \$99.95 \$699

\$29.95

THE FULL GVP PRODUCTS AVAILABLE. RING FOR PRICES

THE FULL ICD PRODUCTS AVAILABLE. RING FOR PRICES

INTERNAL FLOPPY DRIVE

- · Replacement 1MB internal drive
- · High quality mechanism

\$79.95

VISA - MASTERCARD — CHECKS - MONEY ORDERS ACCEPTED ADD \$4.00 SHIPPING/HANDLING — CONTINENTAL U.S. ONLY \$8.00 PR, AK, HI, FO, APO — \$10.00 CANADA/MEXICO PLEASE CALL (215) 922-050 FOR RETURN AUTHORIZATION NUMBER RETURNS SUBJECT TO A 25% RESTOCKING FEE

POWER COMPUTING U.S.A. 21 South 5th Street Suite 900 PHILADELPHIA-PA 19106
Credit Card Orders Only — Toll Free 1-800-45-POWER ● Tel. (215) 922-0050 ● Fax (215) 922-0116

VISA

POWER COMPUTING Ltd 44s Stanley Street Bedford MX41 76 TEL 0234 273000 • FAX 0234 270133

POWER COMPUTING SRI, ITALY Via Delle Baleari, 90 00121 Ostia Li

POWER COMPUTING ENQUIRIES TO ACL Engineering Perth AUSTRALIA (70) 491 ACES POWER COMPUTING FRANCE 63 Rue Victor Hugo 94701 Maison Affort PARIS FRANCE ATARI (1) 43789434 ◆ AMIGA (1) 43787682 ◆ FAX (1) 43787048

/±V//VE/3}/±V/G/{

The Next Generation of Backup Program

Ami-Back is a comprehensive hard drive backup utility with a number of powerful features that make it the most professional program of its type on the market.

- · Elegant user interface for easy operation.
- · Allows multiple configurations for many of backup and restore options.
- Backs up to floppies, hd floppies*, harddrives, and SCSI tape drives.
- Performs backups to a single AmigaDOS file or device.
- · Performs complete, incremental (date or archive bit), and selective backups.
- · Allows up to 100 file exclusion conditions during backup.
- · Allows you to replace defective media without interrupting backups.
- Allows control of protections bits and file datestamps during restores.
- · Allows you to Write-Over, Skip-Over, or Rename files during restores. Can compare backed-up data to system data if data loss is suspected.
- · User-configurable scheduler (no script files!) allows unattended backups.
- · Log file keeps track of background scheduler operations.
- Background backups may be performed manually.
- Support for registered users provided by phone, support BBS, GEnie, or BIX.
 Works with AmigaDOS 1.3 or greater (AmigaDOS 2.0-only version included).
- · Performs complete or selective restores. · Ami-Back is extremely fast...
- · Ami-Back is not copy protected!.
- **Commodore standard. Applied Engineering's HD floppy does NOT work with some versions of Kickstart 2.0 at this time.

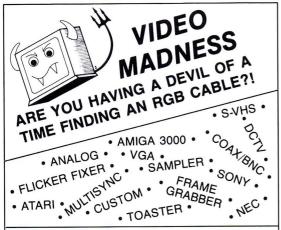
Don't wait until it's too late... order your copy of Ami-Back today!

Moonlighter Software Development, Inc. 3208-C E. Colonial Dr., Ste. 204 Orlando, Florida 32803 Voice: 407-628-3005 Fax: 407-282-3719



For a limited time, send in your previous backup program original disk and order Ami-Back at the special price of \$49.95. suggested list price: \$79.95

AMI-BACK is a registered trademark of Moonlighter Software Development, Inc. Amiga and AmigaDOS are registered trademarks of Commodore-Amiga, Inc. Circle 92 on Reader Service card



WE HAVE THE CABLES YOU NEED-MONITORS / PRINTERS / PLOTTERS / MODEMS



For The Dealer Nearest You! EAST COAST

615-478-5760 FAX 615-472-3643

WEST COAST 206-882-2009 FAX 206-883-1430



Circle 41 on Reader Service card.

not a lot to the game. The graphic interludes (18 stills and 10 animated pictures) are nicely drawn, and the five black-and-white digitized animations have a newsreel immediacy the first time they appear, but

are too brief, missing some details (on terrain and on interacting with villagers, for instance) and simply wrong on others (such as which mouse button to press to rise from concealment during combat).



It's 1966 all over again.

they don't do anything much, aside from taking up disk space. At least, you can toggle them off to increase the playing speed.

Moreover, The Lost Patrol captures none of the tension of war; you never feel as though you're down there in the jungle. You don't even feel lost. You can scroll the map all the way to the base, so there's rarely a question about which direction to take.

The game's not the only thing that's thin. The rules

The Lost Patrol has some good bits, to be sure. The sniper sequence is a challenge-as well as an artistic success-that stresses the very skill (keen eyesight) a soldier would have to have in such a situation. The theme is pleasant until your Amiga plays it to death. (You can shut it off, too.) And I liked being able to load and save games from RAM. Most of these, however, are just little niceties. They can't salvage The Lost Patrol.

INDIANAPOLIS 500

By David Randall

If you crave the thrill of moving extremely quickly, hop into the driver's seat of Indianapolis 500 (Electronic Arts, \$49.95). It's a winner.

True to EA form, it requires you to stop and read the command summary booklet before playing (at least for the look-up copy protection). The opening menu's practice option

takes you into pit row, where a plethora of information is at your fingertips. Read the manual to familiarize yourself with these customizable options, even if you never intend to tamper with them.

When it comes time to drive the car, don't get cocky. I careened down pit row and promptly hit the barrier at the end; Indy 500 is very difficult. The open-wheeled car is sensitive to joystick commands

and is often just plain fickle. Minimize turbo-boost, set the wings to at least three-quarter drag, take it really easy the first few laps, and you'll encounter only a few walls.

When you think you've practiced enough (trust me; you haven't), set up your car for qualifying: Put on the softest tires, lessen drag, set boost to maximum, put fuel at five or ten gallons, and set the antiroll bars and shocks as stiff as you can handle. Experimenting with tire pressures and wheel camber also helps. While this takes time, patience, and technical know-how (see why I advised reading the manual?), it will produce quicker lap times.

Be ready when you select Qualify mode from the menu, for the car immediately comes out of a corner at full speed three turns down the paddock straight. This is an implicitly poor feature. You need the first three turns in the lap to get used to the speed. Couple this with many more destructive wall collisions, and you're back in the pit.

After qualifying, you start the race in a position based on your lap times and average speeds compared to those of the computer opponents. When you select the race option, you have three choices: ten laps with no damage or yellow flags; 30 laps with no damage; or 60 to 200 laps with damage and yellow flags. More combinations should be possible, as few people have time to play a 60-lap game, much less one that consists of 200 laps.

Race mode also adds other cars to the competition, which makes a surprising difference in lap times. At the end of the race, you can either share in the victory celebration (or losers' whinings) or mull over the virtues of a modified wheel camber and prep the car for the next race.

Despite the lack of racecondition combinations and hard-drive support, I fully recommend Indy 500 to anyone who enjoys racing games. It's fun, fast and challenging.

...........

From p. 52.

and a gift from L'Montes for rescuing his beloved.)

 Questions have begun to trickle in about Ultima V (Origin, \$59.95). Some people are looking for the word of power that gives access to Doom in the underworld. It's available from the Codex, but only if you've been good, avatar-wise, and if you've completed the eight shrine quests. (Actually, if you've played Ultima IV, you probably know it already.)

There's also been a question or two about earning money. (Try the dungeons, and use the party's smartest characters when selling booty to get the highest price.) And I've also had inquiries about the rest of the harpsichord tune Lord Kenneth tries to teach you at the Greyhaven lighthouse-important because it will open up the door to the sandalwood box in Lord British's castle. As I recall,

this is simply a matter of translating the notation of the song in the documentation into numbers. (For instance, the opening A-B-C is 6-7-8, and the rest should come easily. Tell it, baby!)

As space is tight, the promised lowdown on Bard's Tale and BT II will have to wait until next time. If you need help with a game, or simply want the dubious thrill of seeing your name in print, you can write to me by US mail at 12 W. 104th St., Apt. 3E, New York, NY 10025, and via electronic mail at P.OLAFSON on GEnie and Peteroo on People Link. Sending a SASE will earn you a personal reply (once I get the other 200 or so letters out of the way).

KARA FONTS

E X P A N D TO UNIVERSAL DIMENSIONS!



STARFIELDS
Animated Hi-Res 704x480 overscan Starfield backgrounds in 3 views: Front, Oblique, and Side. Eagh comes in a 2 color version for fast loading and transferring to video AND a 16 color version to include 2 different KARA FONTS or one KARA. FONT with 1 of the 4 included animated objects (Asteroid, Comet, Earth, Satellite). Includes a utility to install ALL Kara Fonts Packages on Hard Drives. 2 DISK SET - Sug. Retail \$ 59.95



HEADLINES

SUBHEADS

HEADlines 2

HEADLINES

READLINES
10 Hi-res, up to 8 color, uppercase fonts in two sizes each (approx. 104 and 84). Font styles in CHROME, MARBLE, BRICK and GRANITE are dragable for added 3-dimensional effects. Other styles are CHISEL, WOOD, BEVEL, CHISELserif, CAST, and COLUMN.

3 Disk Set - Sug. Retail \$ 79.95

SUBHEADS

The SAME popular Hi-Res10 fonts as in HEADLINES, but in two smaller sizes each (approx. 72 and 55). Makes it possible to have <u>Caps</u> and <u>Small Caps</u> effect and use in lower resolutions at a workable size. 2 Disk Set - Sug. Retail \$ 69.95

HEADlines2

4 NEW. Hi-Res, 8 color fonts in 2-3 sizes each. GLASS- Transparent upper case gothic face. ChiselSCRIPT- Italic script in upper and lower case. EMBOSSED- Raised or sunken letters on a surface. ENGRAVED-Dragable, uppercase two-plane shiny font. 2 Disk Set - Sug. Retail \$ 69.95



AnimFonts™3*

AnimFonts²⁰³ NEW!

CAPSULE is a Hi-Res, 8 color, metailic, uppercase, contemporary, rounded gothic font, which "Sparkles on" from the middle revealing characters to the top & bottom. Then, an "X" sparkle injulights each letter towards the right. A separate "X" sparkle to custom effects is included. Comes in both a keyboard and AnimFont with palates of Chrome, Cold, Metallic and Silver.

ONE DISK - Sug. Retail \$ 49.95



AnimFonts[™]2*

AnimPonts:

BULLION is a Hi-Res, 8 color, beveled dimensional, highlighted, uppercase gothic fort and comes in a keyboard and. AnimPont. The AnimPont rotates unto the screen 90 degrees on the "7" axis to the left while a glint of light goes across the tace from left to right. When used as instructed, the glint travels continously across the word(s). <u>Included</u> are palettes of Gold, Metallic and Silver.

ONE DISK - Sug. Retail \$ 49.95



AnimFonts[™]1*

ChromeSCRIPT is a Hi-Res, 8 color formal, sophisticated roman style script in caps and lower case and comes in a keyboard and AnimFont. Each letter of the AnimFont appears to be handwritten across the screen. A variety of treatments can be achieved with the included color palettes such as Chrome, reflective Gold, copper, bronze and other golden effects One Disk - Sug. Retail \$ 49.95

'AnimFonts and STARFIELDS are compatible with DPAINT III, DVIDEO III and other programs that use the ANIM and Anim Brush format.

Requires 1 MEG (keyboard), 1.5 MEG (AnimFonts), 2 MEG (Starfields), 2 Disk Drives or HD+1 Disk Drive.

KARA COMPUTER GRAPHICS

2554 Lincoln Blvd., Suite 1010, Marina Del Rey, CA 90291 (213) 578-9177



HELP KEY

Our resident sage solves puzzles about postscript output, boosting A2000 memory, and more.

By Louis R. Wallace

POSTSCRIPT PROBLEMS

Q: My department has authorized me to purchase a new computer, which is to be used primarily for word processing. I have an Amiga at home, and have been trying to get one at work for months now. It comes down to this. If I can show them a word processor that will produce the same quality output as the Mac we already have, it will be approved. Our printer is a Postscript-based laser printer. So far, most of the word processors I have tried that can use fancy fonts simply print out bitmap pages, which looks pretty poor next to the Mac output. My question is this: Is there any way to get decent Postscript output from a word processor on the Amiga? W. White

Tallahassee, Florida

A: You bet there is. The trick is to choose a system that can use Post-script fonts, not the Amiga's bitmap fonts, for output. My system is connected to a Postscript printer, and I use New Horizon's ProWrite 3.1 as a word processor. To get the best output to the Postscript printer, I use their ProScript accessory package with ProWrite, and the results are as good as your printer and selection of Postscript fonts can give.

Another technique you could use is to try the new ProPage 2.0 package from Gold Disk. Within this desktop publishing package is a word processor called Article Editor. Combined with ProPage's powerful desktop-publishing features, you can get outstanding printed output.

COLOR CONUNDRUM

Q: In a previous Help Key, you had a letter from a user who had created a series of images for an animation, but had a problem in that each frame had a different palette. To solve his problem you suggested converting each frame to a constant color palette. My problem is similar; however, I need to create animations with different palettes in each frame. My question is whether there are any animation players, builders that will play an animation having a different palette for each frame?

> N. Bierde San Francisco, Calif.

A: Absolutely! Progressive Peripherals & Software has a program called The Animation Station. This program has many features for manipulating animations, not the least of which is the fact that it will play animations that have different palettes in each frame. Included with it is a PD utility called AnimBuild that will build an animation from a series of frames, even if they all have different color palettes. (The Animation Station also allows you to create animations that have different display times for different parts of the animation.)

In addition, the animation-player command in Commodore's Amiga-Vision will play animations that have been created using individual frames with different color palettes (and display times).

VANISHING ACT

Q: I am twelve years old, and I like to program in AmigaBasic. I have wondered if in this language there is any direct way to make the sizing gadget, the outer bars and the close gadget disappear? If there is no direct way, could you recommend another method or language?

B. Mullen West Des Moines, Iowa

A: AmigaBasic, in its current form, does not offer many options for its windows, and it does not support borderless windows, which are what you are describing, even though the Amiga's Intuition system does have them built in. The easiest method of generating them in Basic is to use another

Basic like the HiSoft Basic Compiler system. Very similar to AmigaBasic, this offers a number of graphic options not available in AmigaBasic. And, since it is a compiler, your programs will run much faster. In fact, if the source programs are fairly large, they may—once they're compiled—become much smaller than the slower interpreted versions.

AmigaBasic has been out for a long while. Even though it was the most advanced Basic that Microsoft had ever produced when it was first released, it has aged a lot since then, and the aging process has not been particularly kind to it. However, rumor has it that an upgrade is now underway, although there is no information to indicate when, if ever, it will be finished or released.

BREAKING OUT OF THE NINE-MEG LIMIT

Q: I'm an animator using both NewTek's Video Toaster LightWave program and Impulse's new Imagine animation system. My biggest problem with both of these is the fact that even on my nine-megabyte Amiga, I am running into memory limitations due to the number of objects and 24-bit textures I am using. Is there ever going to be a solution to the nine-megabyte limit on the A2000 series?

D. O'Brian New York, N.Y.

A: There already is. Great Valley Products has two new 68030 cards that will allow more then nine megabytes of 32-bit memory on board. One is running at 22 MHz, while the other operates at 33 MHz. Both cards can have up to 16 megabytes of memory on board. And if A2000 versions of 68040 cards show up this summer, as several companies are planning, you can expect to see these accelerators supporting from 16 to 32 megabytes of memory.

800-872-8882

U.S. ORDERS ONLY: CUSTOMER SERVICE OR 213-214-0000

CANADA: 1-800-548-2512

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 213-214-0932



ANNOUNCING ANOTHER CREATIVE COMPUTERS FIRST:

THE CREATIVE COMPUTERS DIRECT ADVANTAGE MASTERCARD"



USE YOUR DIRECT ADVANTAGE GOLD MASTERCARD" ANYWHERE AND EARN DOLLARS GOOD ON EVERYTHING WE SELL!

- Is a real menumeramp revet Save Output
 Free Buyer Insurance
 The Direct Advantage MasterCard's Purchase Assurance protects most items you buy with your card against ioss, thet. Five or accidental breakage five a full 90 days from the date of purchase.
 Output Manufacturer's Warranty!

 Yor'll automatically receive Direct Advantage MasterCard's Extended Warranty or almost every purchase, thereby doubling the manufacturer's warranty up to a maximum of one additional year.

- Now, every dollar you spend for business or personal use with your Direct Advantage Bold Master Card, earne points good toward the purchase of everything was self-one penny for every two dollars you spend. It makes no difference where you use your and or what you buy before you known it, you'll have thousands of points to redeem on the catalog item of your choice! Redeem points with a phone call! One quick call to the Direct Advantage customer service and redemption center's all it takes to turn your points into immediate savings on everything we self. Whet's mare, you'll receive a quarterly point statement to keep you use to date on the total points you've served and used, and cardholder exclusive information on specials that
- - Every Direct Advantage Gold MasterCard holder automatically receives a line of credit of up to \$15,0001

 Take advantage of this offer today!

Call 1-800-872-8882 to apply!

Announcing the Creative Computers Exclusive Money Back Guarantee Program

Now and through July 31, 1991, when you purchase any accelerators, floppy drives, memory expansions, hard drive controllers or Newtek's Video Toaster from Creative Computers, you are protected by a full 30-day. No-Ouestions-Asked Money Back Guarantee!

Are you in the market for a Video Toaster but don't know if it will work right with your set-up? Or are you waiting for your Amiga to compute but don't know what an accelerator will mean in practical terms to you? You need not wait any longer. Just buy it from us, and if you don't like it, send it back for a full refund!

CC-MBG rules: Limited-time offer only applies to above listed categories only. You must call Customer Service to obtain a Return Authorization number before sending the Item(s) back. The Item(s) must be in original condition and in original packaging. No damaged items will be accepted. Relunds issued within 14 days of receipt of the returned item(s). Refund is limited to \$3,000 per customer

Overnight service to Canada as Iow as \$15

Most rates cheaper than Express Mail at the Post Office!

USE DUR TOLL-FREE INTERNATIONAL PHONE LINES

Australia 0014-800-125-712 ; Canada 1-800-548-2512; Denmark 0434-0297; France 19-0590-1099; Italy 1678-74086; Japan 0031-11-1351; Netherlands 06-022-8613; Norway 050-12029; Switzerland 046-05-3420; United Kingdom 0800-89-1178.

eight service and low, low rates via:



g	1000	200	Da
			C
No.			_
			_
	10		-
			-
	-	W.	_
			000000
STATE STATE			Г

Credit Card #

Signature

	OFFER CODE P1740111
Visa	MasterCard

Exp. Date

Credit Cards Accepted





COSTONEY SERVICE: for tech support call 2 18-942-22282 from 11 a.m. to 7 p.m. PST.

Call for all other shipping information. Educational, corporate and newspace purchase orders accepted, lies surcharge for Memories organisms (in Particular and Pa





ORDER BY PHONE *OR* MAIL IN THIS FORM

- 1. Call for most current prices and shipping rates
- 2. Mail this order form to:
- CREATIVE COMPUTERS at: 4453 Redondo Reach Rivel Lawredge CA 90260
- 3. Credit card orders only shipped to billing address.

Name Address City Zip Country Day Phone# () Night Phone# (PRODUCT NAME **UNIT PRICE** TOTAL 7% SALES TAX (CA. RES.ONLY) SHIPPING METHOD: (Call for rates) SHIPPING UPS Ground Airborne Express DHL -International orders METHOD OF Check Money Order Discover PAYMENT: CREDIT CARD USERS ONLY

OFFER CODE: P1740111

OFFER VALID JULY 1,1991 - JULY 31, 1991



U.S. ORDERS ONLY:

800-872-8882

CANADA: 1-800-548-2512

CUSTOMER SERVICE OR 213-214-0000

ORDER STATUS

229 00

. 329,00

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 213-214-0932

MEGA MIDGET RACER 25mhz 639.00

MEGA MIDGET KACEK SSMITZ	/39.00
AUDIO HARDWA	IRE
AMAS MIDI SAMP./A1000	129.00
AMAS MIDI SAMPLER	129.00
CMI MIDI 1 (EXT)	56.95
ECE MIDI 1000	49.95
ECE MIDI PLUS	49.95
MIDI GOLD 500	64.95
MIDI GOLD INSIDER	64.95
PERFECT SOUND 500/2000	70.95

10 STEREO SPEAKERS	33.
2024	649.
2060 ARCNET LAN	199.
2065 ETHERNET LAN	289.
2091 AUTOBOOT CNTRLR	149
2232 MULTI-SERIAL AD	299.
2300 INT GENLOCK2000	239.
2320 DISPLAY ENHANCER	239.
520 COMP. ADAPTER	41.
2000 DRIVE REPLACMINT	99.
FLOPPY DRIVE	8

AE HIGH DENSITY DRIVE ...

ROCTEC 5.25" FLOPPY ...

CUNTRULLERS	6
DVANTAGE 2000 SCSI	139.00
YQUEST CARTRIDGE	90.00
SI 6100 AUTOBOOT CRD	. 79.95
ATAFLYER SCSI INTRFC	. 89.95
VP FAST EPROMS A2000	. 32.95
VP FAST EPROMS A500	. 32.95
VP WT-150 TAPE DRIVE	639.00
VP XC CASE/NO DRIVE	199.00
ARD DRIVE CASE	149.00
ONY DATA CART/WT 150	. 24.95
UPRA WORD SYNC SCSI	109.00

IVIEWUKY EXPANSION
ADRAM 505 INT 512K 59.8
ADRAM 540 0/4 MEG INT 119.0
ADRAM 5600 2 MEG A540 CAI
BASEBOARD A500 0/4 MB 111.0
MINIMEGS A1000 2MB 249.0
MINIMESS A500 2MB 249.0
SUPRARAM 500 1/2 MEG 61.5
MISC. HARDWARE
A MAX II MAC EMULATOR 149.0
CMI MULTIPORT BOARD 195.0

FATTER AG SWITCH A500 21.95

FATTER AGNUS SWITCH'R 21.95

	1	/OD	EW8	;	
BAUD B	ANDIT	MOD	BM	10	5.0
BAUD B	ANDIT	MOD	EM L5	16	9.0
SUPRA	2400	BAUD	MODE	A 8	9.0
SUPRA	2400	BAUD	MWP .	18	5.0
SUPRA	2400	BAUD	MWP+	18	9.0
SUPRA	2400	INT. P	NODEM	11	9.1
SUPRA	9600	V.32			CA

MOMITORS	
NEC MULTISYNC 30	99.0
NEC MULTISYNC IIA	50.0
SEIKO 1440 MULTISYNC 8	99.0
SONY 1304 MULTISYNC 7	79.0

PRINTERS

... 129.00

XTIZEN 68X140 24 PIN	329.00
XTIZEN G8X200 9 PW	185.00
ASERJET III PRINTER	CALL
MS PS-410 LASER PRNT	2485.00
STAR NX-2410 PRINTER	CALL
STAR NX1000 II PRINTR	169.00
VIDEO HARDW	ARE

ARF 97.95 BCD 5000 1995.00 COLOR SPLITTER 119.00 DENISE EXTENDER BUS 85.00

DIGIVIEW GOLD 4.0 PAL 134.00

DIGI VIEW GOLD V4.0 ...

RUCKER FIXER279.00
FLICKER FIXER PAL 300.00
FRAMEGRASBER 448.00
FRAMEGRABBER PAL VERS 659.00
FRAMEGRABBER/258 GRAY 629.00
FRAMEGRABBER/2566 PAL 659.00
HAM-E PLUS399.00
LENS 16MM NO IRIS 18.95
LENS 16MM W/IRIS53.95
LIVE! 1000249.00

FASYL 1000 TARLET EASYL 2000 TABLET .

FASYI 500 TARIFT FLICK. FIX TO GENLOCK

LIVE! 500 309.00
MAGNI 4004 1049.00
MAGNI 40048 1049.00
MINISEN GENLOCK 189.00
MINIGEN PAL GENLOCK 239.00
MERIKI SENLOCK 1799.00
PANASONIC WV1410 189.00
PANASONIC WV1500X 319.00
PERSONAL TBC 849.00
SHARP JX300 SCAWNER 2095.00
SHARP JX450 SCANNER 5195.00
SUPERSEN 2000SCALL
SUPERGEN GENLOCK 649.00
TCRG 102 649.00

VIDEO MASTER GENLOCK 1049.00

Newtek Video Toaster



Digital Video Effects! Genlock - Frame Grabber! 24-bit Paint and Rendering! 3D Modeling and Animation!

Lowest Price in the World - Call!



From Digital **Creations**

Full NTSC Color Display and Digitizer.

-

Call about the "Getting the Most out of DCTV" tutoral tape.

DPS Personal TBC

A New Internal Infinite Window Time Base Corrector with Genlocking for use with the Newtek Video Toaster!

For the Amazina Low Price of





4004/4005

Graphics Encoder for the Amiga 2000/3000

4004S offers S-VHS standard **External control box with fade** and keving controls Now, half the original price

Available Exclusively at Creative Computers \$99500

SHOWMAKER

MAKES DESKTOP VIDEO A REALITY!

· Synchronize Video and Sound to the Beat! · Control External Devices like the Video Toaster, LaserDisc, VCRs, Writable Optical Disks, MIDII • Create Productions of Virtually Unlimited Length! • Edit Productions in Real Time on Your AMIGA!

·Save Finished Productions to Video Tape!

ONLY \$22900

UR VIDEO TOASTER

Hard Drive Specials

Controllers

Court Chief C
GVP Series II - Non Ram Cap \$15900
GVP Series II - Up to 8 megs \$19900
ICD AdSCSI 2000812900
ICD AdSCSI 2080819900
IVS TrumpCard 2000 Prof \$19900
IVS TrumpCard 500 Prof \$25900
Supra WordSync810900
Dataflyer 2000\$8900
Dataflyer 500\$17900

Super Special of the Month

Hard Drive Packages: Buy any controller and any drive from the selection listed below and we will take \$20 off the package price.

Bare Drives

Quantum 52mb LPS	\$26800
Quantum 105	\$36800
Quantum 105 LPS	\$498°°
Quantum 170	
Quantum 210	\$74800

OFFER CODE: P1740111

OFFER VALID JULY 1,1991 - JULY 31, 1991

The Creative Computers Low Price Guarantee

Creative Computers, the service and low-price leader, has just reduced all of its prices even further.

Check out the prices in this ad, then compare them to the competition's. If you find a lower price anywhere, we'll beat it!**

VIDI CHROME COLOR MOD 29.95 CMS SYDUEST 45MB HD 699.00 VIDTECH SCANLOCK PAL 1149.00 VIDEO BLENDER CALL VIDEO MASTER GENLOCK 1049.00 VIP VIDEO INTERFACE 97.95

NEW HARDWARE

DOUBLE TALK A2000	399.0
IVS GRAND SLAM	CAI
OMMIKEY PLUS	. 92.0
OMMIKEY ULTRA	132.0
AUTOLINK	44.8
BIGFOOT 150 POWER SUP	. 97.9

GALAXY APOLLO MODEM 9600449.00 GOLDEN IMG, HAND SCANNER 289,00 NEXUS HCO 0/8MB229.00 PROFESSIONAL SCANLAB CALL DAKOTA SKETCH MASTER 399.00 DAKOTA SWCH MASTER 12X18619 OO STAR NX1020 RAINBOW 219.00 IC AGNUS: FATTER(1MB) 99.00 KICKSTART 1.3 ROM 39.00

ACCESSORIES

DISKETTES/DISK

AUGEOOUNICO	
BANX DISKETTE BOX	14.85
CLEANING KIT LARGE	12.95
CLEANING KIT SMALL	5.95
DISKETTES, 50 PACK	44.00
SONY COLOR DISKETTES	13.9
SONY DISK 10 PACK	12.9
SONY DISK 5.25" 10 PK	7.95
SONY DISK 5.25" DSHD	11.95
SONY DISK DSHD 10 PK	19.95
SONY DISK BSHD 5 PACK	. 9.85

VOODEN DISK BOXES

WOODEN DISKBOX 3 DRWR 55.00	DU
DUST COVERS	DU
AMITOTE A2000 69.95	SA
AMITOTE A500	SAI
AMITOTE A1084	SAI
COVER UPS A1084 MON 6.95	SAI
COVER UPS A1950 MON 6.95	
COVER UPS A2000 CPU 5.95	A1

COVER UPS 42000 KEYRO 2 99

COVER UPS A2000 SYSTM 10.95 COVER UPS A3000 CPU 5.95 COVER UPS A3000/A1950 10.95

WOODEN DISKROY 2 DRWR 45 OO

DOOT GOVEN EXOCUOSE III 20.00		
DUST COVER LASERJET IIP 19.95		
SAFESKIN / A1000 17.95		
SAFESKIN / A2000 17.95		
SAFESKIN / A3000 17.95		
SAFESKIN / A500 17.95		
INPUT DEVICES		
A1352 MOUSE89.95		
BEETLE MOUSE (VAR. COLORS) 39.95		
BOING OPTICAL MOUSE 91.95		
ROSS HOVETHON 14 95		

DISKETTE CALCULATOR 9.95 ERGO STICK

DUST COVER DESKLIFT

28 95

OOONO OI LEDINING	17.0
FREEDOM CONNECTION	25.8
GRAVIS CLEAR JOYSTICK	35.5
GRAVIS MOUSESTICK	64.8
GRAVIS SWITCH JOYSTCK .	32.4
GOLDEN IMAGE MOUSE	39.8
LIGHT GUN, PHASAR	32.4
MAXX YOKE JOYSTICK	79.8
MOUSE MASTER	29.5
MOUSE MATS	6.5
PERFECT SOUND ADAPTOR .	10.9
POWERPLAYERS JOYSTICK	20.8
SLIK STIK JOYSTICK	7.5
STIK-GRIPPER	12.8

TAC-2 JOYSTICK ...

WICO 3-WAY JOYSTICK 22.95
WICO BAT HANDLE STICK 18.95
WICO RED BALL JSTICK 18.95
WINNER JOYSTICK 14.95
ZOOMER JOYSTICK 47.95
PRINTER ACCESSORIES
DATA SWITCH 2-WAY 13.95
DATA SWITCH 4-WAY22.95
DESKJET BLK CARTRIDG E 18.95
DESKJET STAND/ORGNZR 99.00
PAINTJET BLK CARTRIDG 25.95
PAINTJET COLOR CRTRDG 29.95
PAINTJET CUT PAPER 17.95
DAINT IET 7.501 D DADED 17.05

STAR NX2410 RIBBON	7.49
STAR RAINBOW RIBBON	8.95
AUTO DROID5	0.95
COMPUTER SERVICE KIT 1	8.95
COPY/CAMERA STAND 5	8.95
DIGI DROID8	7.95
DESKJET REFILL BLACK 1	3.95
DESKJET REFILL BLUE 1	3.95
DESKJET REFILL BROWN 1	3.95
DESKJET FULL COLOR KIT 3	4.95
DESKJET REFILL GOLD	3.85
DESKJET REFILL RED1	3.85
DESKJET REFILL YELLOW 1	3.95
GOLDEN IMAGE MOUSE 3	9.95
MONITOR STAND A500 2	7.95



Roctec
New, reliable drive for the Amiga.
Super slim, less than 1-inch high.
Low power consumption. \$9495 Drive pass-thru.

HP Printers



Deskjet 500 ... 469.00 Laserjet III . 1499.00 Laserjet IIP ... 799.00 Paintjet 949.00 Paintjet XL ... 2049.00

Sharp JX-100

NewTek

A portable color scanner. 200 dpi / 24bit color. Includes Scanlab software from ASDG



Great Valley Products Series II for the Amiga 500



40mb	\$599°°
52mb	\$ 625 00
80mb	\$699°°
105mb	\$ 845 00

Video Hardware

Future Video - Edit Controller Panasonic AG-1960 - VCR Deck All Available - Just give us a call!

BCD 5000 - Single Frame Controller.

GVP Series II Accelerators

New single-board design on 22 & 33 Mhz These new Series II accelerators have a built-in GVP SCSI controller Now holds up to 32 megs of ram!*



SupraRam 2000 4mb RAM SupraRam 2000 8mb RAM ... SupraRam 500 512k

22Mhz \$89800 33Mhz ... \$167800 50Mhz ... \$229800

*50 Mhz hoard, others hold less



New From

AdSCSI 2000 \$129⁰⁰ Hard card interface with AdSCSI 2080 ... \$18900

Deskiet Full Color

(Digi View Gold 4.0, WV1410 Camera, Copy Stand, Lens, Cable)

Print full color on your HP Deskiet printer! Inkmun Full Color Kit\$34.95

New, lower priced Mega-Midget Racers!



25 Mhz ^{\$} 499 ⁰⁰
33 Mhz ^{\$599°C}
Ram Board with 2mb . \$409°
Ram Board with 4mb .8779°C
68882 - 25 Mhz\$27900

These Economy boards do not have an MMU



U.S. ORDERS ONLY:

CANADA: 1-800-548-2512

CUSTOMER SERVICE OR

800-872-8882 213-214-0000

ORDER STATUS

4453 Redondo Beach Blvd., Lawndale, CA 90260 - Mon-Sat 8-6 PST - FAX: 213-214-0932



.. 119.00

DESIGN DISKS CIFY SCULPT/TSILVER/VSCAPE) 22.85 ... 25.85 ... 25.85 ... 25.85 ... 25.85

CLIP ART ARSHPS/20TH SCULPT 23.95
ARSHPS/20TH TSUVER 23.95
COLOR CLIP ART VOL #1-3 (EA) . 17.95
CUP ART #1-8 (EACH) 12.95 SOFTCLIPS: PEOPLE SOFTCLIPS: CLASSIC SUPER CLIPS 1-3 (EACH) FONTS

SETTO LEGY 15 (SECRET) 15 (1985)

SET PROCE THE SET THAT SET THAT

DEAST TITLER II

RROADCAST TITLER II PAL

VISTA PAL VISTA SCAPES CALLE #1 VISTA SCAPES MARS VISTA CRAND CANYON 1 VISTA GRAND CANYON 2 VISTA WESTERN U.S. RENDERING/NEW GRAPHICS PROGRAM

.. 229.00 ... 239.00 ... 29.95 ... 99.95 ... 58.95

48.95 MISC. GRAPHICS ACAD TRANSLATOR CREDIT TEXT SCROLLER 49.95 BER V2 SFTWR

. 37.95

. 58.95 . 87.95

48.95

48.95

IMAGINE

MODELER 30

PIXMATE

PHOTON PAINT 2.0

PROVECTOR SCREEN MAKER

SCHIPT SOXI

SPECTRACOLOR

TV GRAPHICS 2 VIDEOTITLER 30

VISTA 1.2

INTERCHANGE 29.95 ... 18.95 INVISION PLUS . Map Pics - US . NERIKI VIDEO TOOLS ON TAP ... PERFORMER (ELAN) PIXE 30 ALL . 52.95 199.95 PRO VIDEO PLUS PAL. PRO VIDEO POST 209 00 PRO VIDEO POST PAL 209.00

. 51.95 SCENE GENERATOR TERRAIN FOR TURBI 29.95 TV GRAPHICS 29.95 58.95 TVTEXT PROFESSIONAL VIDEO EFFECTS 30 . VIDEO EFFECTS 3D PAL 139.95 VIDEO TODI S 179.00 VIDGEN 1.0 DRAWING/CAD

DECKBUILDERS CAD . . 59.95 164.00 CALL . 29.95 124.00 . 69.95 . 50.95 . 26.95 . 72.95 RIIII DERS CAD 2 D HOMEBUILDERS_SCULPT HOMEBUILDERS_CHOICE HOMEBUILDERS LIB 1

PROFESSIONAL Ultra design . XCAD DESIGNER XCAD DESIGNER PA 124.00

MUSIC SOFTWARE MUSIC EDITOR/LIBRARIAN RARS AND PIPES 139.00 DR. T'S KCS 3.0

224.00

OR. T'S KCS LEVEL II OR. T'S KCS LEVEL II 3.5 ...

DIGITIZ HOM YAS

DR. T'S MT-32 FD/18 ... 87.95 SOUND DUEST/MIDIOUEST 148 00 MISC. MUSIC MISC. MUSIC
BARS AND PIPES MULTIMEDIA
BARS AND PIPES MUSICBOX A
BARS AND PIPES MUSICBOX S
BARS AND PIPES MISCOSOX S
BARS AND PIPES MIT. SOUNDS
DR. TS COPYST APPR.
DR. TS KOSCOPYST DPP
MASTER TRACKS PRO .. 75.95 . 190.00 . 219.00 . 259.00 ... 51.95 TRACKS PRE SOUNDTRAX VOL 1 SOUNDTRAX VOL 2 .. 14.95 .. 14.95 .. 58.95

SAMPLER/EDITOR SOFTWARE

UTILITY SOFTWARE MISC. UTILITIES
AN ALIGNMENT SYSTEM
ANDS THE CREATUR
B.A.D. DISK OPTIMIZES V4.0
CROSS DOS
DISK MECHANG, THE
DISK TO BISK
DISKMASTER

BACKUP SOFTWARE

PRINTER UTILITIES DJ HELPER Palette printer . Super DJ V2.0 ... TELECOMMUNICATIONS BAUD BANDIT .. BBS PC TGALINK FOR IMAGELINK X-COPY PROFESSIONAL 91.95 ONLINE PLATINUM . MINDLINK TELECOM PARAGON BBS V2.08 SKYLINE BBS V1.2 ACCOUNTING
BEST BUSINESS MGMT
DESKTOP BUDGET

PRODUCTIVITY

SOFTWARE

DATABASE

WORD PROCESSING

. 64.95 . 44.95 . 97.95 . 40.95

... 64.95

CYGNUSED PROF. REL. 2 ... Excellence version 2

EXCELLENCE (FRENCH)

OFFICE GOLD DISK

PROPER GRAMMAR ..

SCRIBBLE PLATINUM

PROGRA . 195.00 ... 69.95 ... 58.95 ... 99.00 AC FORTRAN ADAPT 680 X O AMIGA LOGO BENCHMARK MODULA-2 BENCHMARK SOURCE LV Cape 68k assem 2.5 ... Inovatools 1 JEORTH PR

LATTICE C SAS/C . LATTICE C++ POWER WINDOWS Source Level Dee WS 2.5 WORKRENCH 1.3 NEW PROGRAMI UTILITIES BYTE W BACK BACKUP

TURBO TEXT ... Word Perfect CINE INK FOR IM DESKTOP PUBLISHING DISK LABELER PELICAN PRESS PROFESSIONAL PAGE 2.0 189.00 ACK TOOLS

Editing with your Video Toaster?

SCREEN MAKER delivers 24-bit IFF Broadcast Graphics!

- 100 Deep Color Toaster compatible images.
- · Less than \$3 per image.
- •NTSC and PAL.

Make the Video Professionals' Choice! ... \$23900 On SyOuest Cartridge ...

PGA Tour Golf

The Secret of Monkey Island



Eye of the Beholder





\$2295

Don't forget to ask for your free copy of either Skyfox II, World Tour Golf, Intellitype, or Swords of Twilight with the purchase of any EA distributed title.

Vista Professional

24 bit output! W \$**R**795



Pen Pa

You deserve the best! **SQQ**95



Proper Grammar

G495



Draw on our resources... Softclins TM by

Softwood \$4**6**95



Distant Suns Control the



Vista 1.2

No more polygons Requires only 1



Bars & Pipes Professional

8 1 1



Bars & Pipes Professional will open your eyes to a new vision of music software. Its expandable design and innovative architecture increase the creativity and productivity of the modern composer.

Audition

Advanced digital sound editing.
More features than AudioMaster 3.
100% Assembly language. SQ 49



SAS/Lattice C 5.1

The standard complete C programming language for the Amiga\$199°C



Visit our Amiga Superstores!

South Bay: 4453 Redondo Beach Blvd. - Lawndale, CA 90260 - Mon-Sat 11-7 PST -Phone: (213) 542-2292 Westside: 318 Wilshire Blvd. - Santa Monica, CA 90401 - Tues-Sat 11-7 Sun 11-5 PST-Phone: (213) 394-7779



TEMPLICITY ANALYZE TEMPLICITY MAXIPLAN . TEMPLICITY SUPERPLAN TEMPI ICITY VIP PROF

CIRCUIT DESIGN PRO BOARD/NET PACKAGE 289.00
PRO BOARD PERSONAL CALL
PRO NET PERSONAL CALL

FRUCATIONAL SOFTWARE PRESCHOOL

20.95
DES FARM 20.95
DES FARM 20.95
DES FARM 20.95
DES FARM 20.95
17.95
BOUS TITLES) 11.49
ATH 23.95
PELLING 23.95
PELLING 23.95 BARNEY BEAR GOES FARM BARNEY BEAR TO SPACE . CHICKEN LITTLE KATIES FARM . 25.95 . 29.95 . 13.95 . 25.95 . 32.49 LETTERS FOR YOU . MATH BLASTER PLUS

. 23.95 . 25.95 . 29.95 . 25.95 MCGEE 19.95 MY PAINT 2.0 29.95 MY PAINT DATA DISK #1 My Paint data disk #2 . 19.95

. 19.95 OPPOSITES ATTRACT . SPRIAFARI 23.95

UNCLE D'S DATA DISK 1 19.95 GRAMMAR SCHOOL/ADULT ALGEBRA PLUS VOLUME I

CALCULUS CROSSWORD CREATOR ... DISTANT SUNS DISTANT SUNS PAL VERS

JAPANESE I LINGUAGES I LINGUAGES I LINGUAGES I MASTERING CLI MATH-AMATION MAVIS BEACON TYPING PRE CALCULUS TRIGONOMETRY ORLD ATLAS 2.0

GAME SOFTWA

ARCADE GAMES ARCAGE ACTION PACK .
AWESOME .
BATMAN THE MOVIE .
BATTLE SQUADBON .
BLOOD MONEY .
BRANBLASTER ACTION DRAGONS LAIR IL/SINGE' KILLING GAME SHOW ...
LEMMINGS ...

NY WARRIORS PIONEER PLAGUE ..

ACTION/STRATEGY R OF SC

BANDIT KINGS OF CHINA FEMME FATALE **FULL METAL PLANET** IT CAME FROM DESERT 2 IT CAME FROM DESERT _ SURE SUIT LARR III I FISHER SHIT I ARRY 25,95 38,95 33,95 38,95 30,95 32,95 14,95 LORDS OF THE RSMC ST M1 TANK PLATOON

MEAN ST POPULOUS POPULOUS DATA DISK #1 ROCKET RINGR/3 STOOGES ROMANCE OF 3 KIN STAR CONTROL

FACES...TRIS III . 24.95 WELLTRIS . WHERE IN THE U.S.A.

CD TITLES

FLIGHT SIMULATION 10 TANK KILLER .

F-18 STEALTH FIGHTER ... FLIGHT SIMULATOR II HAWAMAN ODYSSEY F18 INTERCEPTOR ...

ROLE PLAYING

BALT. 34.55
BARD'S TALE 13.55
BARD'S TALE 13.55
BARD'S TALE 13.55
BARD'S TALE II THEF OF FATE . 34.55
CAPTIVE 22.55
DURSEON MASTER 22.55
DURSEON MASTER 23.55
CHARDS STRIKES BACK 23.55
IMMORTAL 34.55

SPORTS California Challenge ...

. 14.95 . 25.95 . 13.95 . 13.95 . 12.95 CYBERBALL Earl Weaver Baseball EARL WEAVER COMM.DISK Earl Weaver Stats WS1 .. 14.95 .. 32.49 .. 31.95 .. 32.48 EUROPEAN CHALLENGE ... GRETZKY HOCKEY ...

HARDBALL II DATA DESK
HOCKEY LEAGUE SIMULATOR
HOLE IN ONE GOLF
HOLE IN ONE COURSE #3 _____12.85
_____14.95
_____14.95
_____14.95
______28.85
_____14.95
_____22.95
_____14.95
_____25.95
______32.49

JUCK MICCLAUS INMINITY 38.55
PROF. FOOTBALL SIM. 22.95
SUPPE CARS 14.95
TENTROPY I 25.95
TESTURINE I 22.49
TV SPORTS BASKETBALL 19.95
TV SPORTS FOOTBALL 90 DATA 9.95 STRATEGY

NEW GAMES

BATTLE STORM
CARTINGE
CENTURION
DAS BOOT
DAS BOOT
FAST EDIDIES POOL
GENERALT
HARPOON SCHANGO ENTOR
HARPOON SCHANGO ENTOR
HENDS QUEST
HOVER FORCE
CALING CLOUD
KINC'S SQUATY
MEETEYAL WARRINGS
MESATRAWELLER 1
MIS 29 RELICIAM PAL VERS
MISATRAWELLER 1
MIS 29 RELICIAM PAL VERS
MISATRAWELLER 1

MONOPOLYSCROUS

VIDEOTAPES VIDEOT APES
AMIGA MADO DRIVES VIDEO
AMIGA PERMET
AMIGA WOED MAGAZINE
AMIGA WOED WEGETAPE
AMINGA MOED WEGETAPE
MAGNES SUBED TOUR PAIL
ENTHAVE TUDEO TOUR PAIL
ENTHAVE TUDEO PRO 12
LUTHMATE VIDEO PROD 1
LUTHMATE VIDEO PROD 1
LUTHMATE VIDEO PROD 2

PICK TO PILE
POWERHOMISER
PRINCE OF PERSON
PRO TENNES TUDE 2
SCARCE FOR THE KING
SCORE FOR MOMER'S BLAND
SCHOOL THE TUDE AS
SCHOOL TO MEMORY BLAND
SCHOOL THE TUDE FOR
STREET ROD I
STREET



Professional Page 2.0

The Ultimate in Deskton **Publishing** Easy to Use. Free DTP video. Prints 24-bit images. **Built-in text editor & dictionary. Rotate text and graphics.**

ProWrite



New Horizon's new word processor takes on all challengers with features like these:

100,000 word Spelling Checker. irus with 300,000 word cross reference. <u>Adjustable</u> defaults for ALL program settings. Imports HAM or IFF i<u>mages</u>



Centurion \$3495



2 page display.

Speed Rall 2 "Wav Cool!" 40 8

QuickWrite

QuickWrite

\$1195

Text only word processor from the makers of ProWrite. Features; Arexx Support, Mail Merge, Spell Checker, Import/Export Professional Page files. Ideal for all Amiga configurations.

Copyright



86595 with hardware \$55% without hardware



lmagine: A guided tour

Unleash the power of Imagine using this easy-to-follow 90-minute tutorial m Centaur Software. \$7695



Sound Master

Hign Speed Digital Audio Sampler. Includes AudioMaster 3.

SG495

XCAD Professiona

Full-featured. professional 2-D design and drafting tool suitable for engineers, draftsmen, and designers.



From p. 18.

with, and that the grid has a finite number of points on it, you will understand what Terrain does. Spend ten minutes with Terrain and you can master it—it's really that easy to learn.

Your choice of screen renderings includes wireframe, polygon (wireframe with hidden-line removal so you don't see through object elements), and a filled mode with a simulated light source and natural colors. You can perform any of these from a North, South, East, or West viewpoint, or from the point-of-view of a camera (similar to Turbo Silver's camera object) that you can drag to any point in space above or below your grid and then aim in any direction.

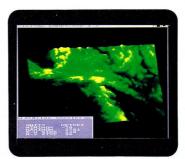
Terrain's output can be a series of Turbo Silver "cell" files for animating in that program, or it can be a single object file. Imagine cannot deal with sequenced Silver cells, but since Terrain can also generate Silver-format object files, this will do for Imagine. If you want an IFF picture from Terrain, you must use a screen-saving

Don't buy Terrain if you want only to create free-standing, realistic IFF scenery pictures. That's not what it was designed to do. Turbo Silver users will get the most out of Terrain. It is easy to learn, it gets the job done, and, best of all, it's fun to use.

The Reality Simulators

The United States Geological Survey (USGS), creates, catalogs, and sells "Digital Elevation Map" (DEM) data files of virtually every part of North America, as well as many other areas of the planet and other bodies in our solar system. A few ingenious Amiga software companies have bought many of these DEM files (primarily used by cartographers, seismic researchers, and other scientists) on nine-track VAX-readable tape and have distilled the data into files their own programs can digest and render. This is the case with Digital Landscape, Vista, and Vista Pro.

Keep in mind, however, that landscape data files for these different programs, although they are derived from the same data purchased from the USGS, are mutually incompatible. You cannot, for example, directly load a Vista .scape file into Digital Landscape, or a Digital Landscape .EN file into Vista. I wish someone would devise some conversion software for these files among the several pro-



Los Angeles never looked better, thanks to Digital Landscape.

grams. Also, while some of these programs can save 3-D objects, none can load them.

DIGITAL LANDSCAPE

Digital Landscape (DL), from *Digiscape Software* and priced \$124.95, accepts real-world terrain data from three accessory disks included with the package. More than 150 real locations in the US, Canada, and Mexico are mapped on these disks, including such places as the greater Los Angeles Basin, Chicago and Lake Michigan, Boston, San Francisco, Quebec, and more. This is an absolute wealth of data to explore and render.

DL's data files are supplied in either 1:250,000 scale or 1:1,000,000 scale, which means the points of data represent locations hundreds of meters apart. Hence, each data file covers a rather large piece of real estate. As intriguing as all this data is, however, DL presents some real problems when it comes time to load and render the scenery.

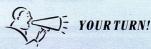
DL was written in compiled HiSoft BASIC. The interface is primitive compared with the other software discussed here. When you first try to load a data file from disk, you are not even offered a standard file requester—just a single-line, string-input gadget (text box) that asks for a name. As a data file loads, your pointer does not change to a "sleepy" mode, so the only way you know a file has finished loading is to watch your disk drive's light. I might have put up with this methodology five years ago, but today it just feels cumbersome.

Rendering modes are all accomplished on a 320 × 400 interlaced screen. No hi-res. No overscan. No HAM. No 24-bit. You choose from two-color wireframe, multicolored wireframe, flat contour mapping, mesh (like a wireframe grid), or filled

mesh. In my opinion, this last mode is the only one that offers a satisfactory rendering. DL offers no palette control, and it takes about the same amount of time to display the landscape in all of the modes.

The requesters for altering your point of view that are available are pretty clunky to operate. There is no "camera" or "target," per se; instead, you control the landscape view by changing declination, rotation, and scaling-as though the scene were presented fixed to the head of a tripod that you could swivel around and move closer or farther away. Like other compiled BASIC programs I have used, feeding improper input to some of DL's requesters can cause a complete and immediate shutdown of the program, forcing you to rerun it and start over.

Digital Landscape does let you create your own data files from scratch—a laborious process of entering many



Digital Landscape made a very good start, although I am not using it now. Creating the landscape I needed for outdoor scientific testing was too tedious, and it stressed the capacity of the program. I really don't think the program is finished yet.

Dave Higgins
Albuquerque, N. M.

data points that you must calculate yourself from whatever mapped data you have on hand. As the manual suggests, this allows you, for example, to create population-density maps or to plot forest fires by area. What you get out of the exercise of making your own data files depends wholly on how much you put into it.

What this software really needs is a complete overhaul. It should be rewritten in a faster language. It needs real file requesters, more rendering modes, and palette control. The most entertaining aspect of Digital Landscape as it now exists is the abundance of landscape files on the disks in its package.

VISTA

Virtual Reality's two titles, the original Vista (\$99.95) and the newer, powerful Vista Pro (\$149.95), are both winners. Vista was the first low-cost, realworld, landscape-rendering software ▶

) AMIG

800-BE-AMIGA (800-232-6442)

We carry over 2000 items for the Amiga, including most software titles. Call us for all of your Amiga needs!

ACCELERATORS

MEGA MIDGET RACER 25mhz 639.00 MEGA MIDGET RACER 33mbz 739.00 **AUDIO HARDWARE**

AMAS MIDI SAMP/A1000 ... 129.00 AMAS MIDI SAMPLER 129.00 CMI MIDI 1 (EXT) 56.95 ... 49.95 MIDLEOLD SOO .. 64.95 MIDI GOLD INSIDER .. 64.95 SOUNDMASTER 149.00

FLOPPY DRIVES AE HIGH DENSITY DRIVE 199.00 ROCTEC 5.25" FLOPPY 158.00 ROCTEC SLIM EXT. 3.5" 94.95 GVP FAST EPROMS A2000 32,95 GVP FAST EPROMS A500 32.95 GVP WT-150 TAPE DRIVE 839 00 GVP XC CASE/NO DRIVE 199.00 HARD DRIVE CASE

. 149.00 SONY DATA CART/WT 150 24 95 SUPRA WORD SYNC SCSI 109.00 TRUMPCARD 2000 PROF. 199.00 MEMORY EXPANSION ADRAM 505 INT 512K 59.95 ADRAM 540 0/4 MEG INT 119.00

ADRAM 5600 2 MFG A540 CALL

BASEBOARD A500 0/4 MB ... 111.00

CONTROLLERS

ADVANTAGE 2000 SCSI 139.00

SYQUEST CARTRIDGE 90.00

CSI 6100 AUTOBOOT CRD 79.95

MINIMESS A1000 2MB 249.00 MINIMEGS A500 2MB 249.00

SUPRARAM 500 1/2 MFC 81 95 MISC. HARDWARE

A MAX II MAC EMULATOR 149.00 CMI MULTIPORT BOARD 195.00 DUAL SERIAL ROARD 269 DO FATTER AG SWITCH A500 21.95 FATTER AGNUS SWITCH'R 21.95 MEGACHIP 2000 259.00

MODEMS BAUD BANDIT MODEM 105.00 RAID RANDIT MODEN 15 189 00 SUPRA 2400 BAUD MODEM 89.00 SUPRA 2400 BAUD MNP 165.00 SUPRA 2400 RAUD MNP+ 189 00 SUPRA 2400 INT. MODEM 119.00

SUPRA 9600 V.32 .

MONITORS

NEC MULTISYNC 3D 699.00 NEC MULTISYNC NA . 850.00 SEIKO 1440 MULTISYNC 599.00 SONY 1304 MIII TISYNC 779 00 **PRINTERS**

CITIZEN GSX140 24 PW 329.00 CITIZEN GSX200 9 PIN 185.00 LASERJET III PRINTER CALL QMS PS-410 LASER PRNT .. 2495.00 CALL STAR NX-2410 PRINTER

STAR NX1000 II PRINTR 169.00 VIDEO HARDWARE AMIGEN GENLOCK 97.95 BCD 5000 1995.00 COLOR SPLITTER 119.00 DENISE EXTENDER RUS 25 00 DICI VIEW COLD V4.0 129.00

DIGIVIEW GOLD 4.0 PAL 134.00 EASYL 1000 TABLET 359.00 FASYL 2000 TARLET 289 00 FASYL 500 TABLET _ . 329.00 FLICKER FIXER 279 00 FLICKER FIXER PAL 300.00 FRAMEGRARRER PAL VERS ... 659.00 FRAMEGRABBER/256 GRAY .. 629.00 HAM-F PILIS 299.00 LENS 16MM NO IRIS 18.95

INFI 1000

LIVE! 2000 ...

MAGNI 4004 .

MINIGEN PAL GENLOCK 239.00 MERIKI CEMI OCK 1799 00 PANASONIC WV1410 189.00 PERSONAL TRC 949 00 SHARP JX300 SCANNER 2095.00 SHARP JX450 SCANNER 5195.00 SUPERGEN 2000S CALI SUPERGEN GENLOCK 649.00 VIDEO MASTER CENI OCK 1049.00 VIDI CHROME COLOR MOD 29.95 VINTECH SCANI NEX PAI 1149 NO VIDEO BLEWDER CALL VIDEO MASTER GENLOCK 1049.00

MINIGEN GENLOCK ...

.. 189.00

NEW HARDWARE

.. 299.00

39.00

DOUBLE TALK A2000 . IVS GRAND SLAM CALL OMNIKEY III TRA 132.00 AUTOLINK .. . 44.95 BIGFOOT 150 POWER SUP 97.95 CMS SYNUFST 45MR HD R99 NO GALAXY APOLLO MODEM 9600449.00 GOLDEN IMG. HAND SCANNER 289.00 MEYIIS HOO O/SMIR 229.00 PROFESSIONAL SCANLAB CALL DAKOTA SKETCH MASTER 389.00 DAKOTA SKCH MASTER 12X18819.00 STAR NX1020 RAINBOW 219.00 IC ACMUS: FATTER(1MR) 99.00

KICKSTART 1.3 ROM

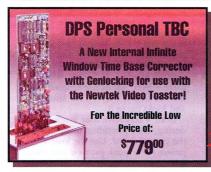
IC AGNUS: SUPER FAT 99.00

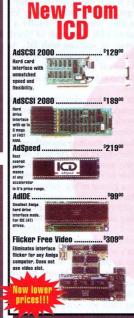
CTV From Digital **Creations**



Full NTSC Color Display and Digitizer.

Best Seller!





Newtek Video Toaster

VIP VIDEO INTERFACE 97.95

X-SPECS 3D



249.00

.... 349.00

309.00

.. 1049.00

... 1049.00

Digital Video Effects! Genlock Frame Grabber! 24-bit Paint and Rendering! 3D Modeling and **Animation!**

Hard Drive Sale

r Special of the Mo

Hard Drive Packages: Buy any controller and any drive from the selection listed below and we will take \$20 off the package price.

GVP Series II - Non Ram Can. \$1590 GVP Series II - Up to 8 megs \$19900 ICD AdSCSI 2000 ICD ARSCSI 2080 \$1998 IVS TrumpCard 2000 Prof. ... \$1990 IVS TrumpCard 500 Prof. \$25901 Sunra WerdSync ...

Dataflyer 2000	\$89a0
Dataflyer 500	\$17900
Bare Drives	
Quantum 52mb LPS	\$26800
Quantum 105	\$368°°
Quantum 105 LP8	., \$49800
Quantum 170	\$67900
Quantum 210	\$74800

Supra Corporation



SupraRam 2000 2/8mb Board .. \$16900

SupraRam 2000 4mb RAM SupraRam 2000 6mb RAM320.00 SupraRam 2000 8mb RAM SupraRam 500 512k

without notice.

Due to industry fluctuation, RAM prices are subject to change

Great Valley Products Series II for the Amiga 500



\$62E \$699°

105mb

. \$845°

GVP Series II Accelerators

New single-board design on 22 & 33 Mhz These new Series II accelerators have a built-in GVP SCSI controller Now holds up to 32 megs of ram!*



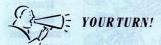
22Mhz \$89800 33Mhz ... \$167800 50Mhz ... \$229800

*50 Mhz board, others hold less

with a pleasing output. Vista Pro incorporates many of the original Vista features, but adds a number of new ones while also significantly enhancing its rendering capabilities and sheer power. Both programs make extensive use of the USGS DEM data files included with the package.

Vista's interface is logically arranged and easy to learn. The right half of the screen contains most of the program's flexible controls. Two tiny characters atop the landscape represent your camera and its target. By using either the mouse or gadgets, you control where the camera sits and where its target is located. Put your camera way up in the "sky" and the target directly below it at ground level, and you will get a bird's-eye view of the entire landscape. Put the camera close to the ground, and you can explore peculiar nooks and crannies of the terrain.

Gadgets and requesters give you



I have nothing but praises for this ingenious and fast mapping program. Vista is easy to use in testing animations by rendering in the eight-polygon mode and then saving to a Turbo file if you like what you see. It would, however, be nice to see support for other 3-D programs.

Scott Ostermann Winnipeg, Manitoba

command of snow and tree levels, blending and smoothing algorithms, haze (atmospheric distortion) factor, wide-angle or zoom lenses, and north/south/east/west light-source placement. You can fill shallow areas of the landscapes with the "lake" button, and run rivers with another button. Everything is geared towards increasing the life-like appearance of the final product.

Vista also offers random fractallandscape generation at the click of a button, with billions of possibilities. While these "fantasy" landscapes expand the potential of the software, I think the ability to generate scenes of real places is where the true worth of

While Vista and Digital Landscape both use data derived from USGS



A bird's-eye view is one of the many choices available in Vista Pro.

DEM files, Vista's files cover much smaller areas, because it uses 30- instead of 900-meter data. This scheme has its good and bad points: While you get much more detail in any given geographic location with Vistaformat files, you cannot render a large area with it (say, all of Northern California) as you can with DL. Any Vista-format landscape file is roughly four miles on a side. This is a limitation of Vista, but merely a difference in focus.

Vista's weakest element is the quality of its rendering. Although it provides four levels of detail (with each higher level offering a higher-quality picture), Vista has no shading algorithms. Because the object files are built of polygons, any part of the landscape that falls close to your camera's "lens" renders as a group of big, colored triangles. And Vista's only output mode is lo-res (320 × 200) HAM. (Editor's note: According to Virtual Reality, the latest upgrade will feature Gouraud shading as well as the ability to draw trees.)

Vista's scripted-animation features are fun to play with. Script Creation mode writes an ASCII text file on disk with a successive list of coordinates for the camera and target, including their elevations, headings, pitch, yaw, and banking. Once you create a script, run it, and Vista will churn away, rendering from each set of coordinates for whatever landscape is loaded, and saving the pictures to disk as separate, sequentially numbered IFF files.

Using another program, you can then sequence these files into an ANIM-format file. (Vista itself saves only the individual pictures.) Because the script files are plain text, you can tweak and edit them with any text editor. The sensation of actually moving through a landscape in an animation is astounding—well worth the time it

takes to generate dozens, perhaps hundreds of scripted pictures for an animation.

VISTA PRO

While Vista is certainly an enjoyable piece of software, its initial release led many to yearn for more features, more rendering modes, and more power. Vista Pro answers all of these requests. If you have at least 3MB of RAM, a hard disk, and an accelerator board, skip Vista and go for Vista Pro instead.

Vista Pro pulls out all the stops and overcomes the limitations encountered in Vista. Its output is pure eye candy—gorgeous stuff. Pro can render to *any* Amiga mode of resolution: low, medium, interlace, high, with or without overscan, 16- or 32-color, HAM, and 24-bit (16.7 million colors). The number of gadgets on the interface is three times that offered by Vista.

Vista Pro gives you control over sea level, shadows, starry skies, turbulent water, and dithering. Gouraud shading has been added as an rendering option: Turn it on and all those rigid triangles vanish, replaced by beautifully smooth, realistic terrain. Where Vista had four locations for the sun, Vista Pro has an infinitely variable and intuitive way to let you put the sun anywhere above your landscape.

Where Vista has a fixed wide-angle or zoom lens, Vista Pro's camera lens also proves infinitely variable. You can actually pull the camera back so far in space and set the lens to such a wide angle that you can make your land-scape scene look like a tiny planet floating in space. For some other bizarre effects, adjust the camera's altitude so that it is below the landscape and looks up to it.

Both Vistas have four levels of rendering, each providing more detail at the cost of speed. Use the lowest power for a quick preview and then, when you are happy with your settings, shift into the higher modes for shadows and shading. Even in the most detailed mode, with shadows and shading turned on, you can figure on about five minutes to render a Vista Pro landscape on an 68030equipped Amiga. Double that time for an '020 and make it about half an hour on an unaccelerated 68000 machine. (By the way, both Vista and Vista Pro come on disk in standard and 68881 versions.)

Vista Pro renders to a separate screen. Rather than painting the fin-

ished picture to the screen one scan line at a time from the top down, it presents your results to you as though you were slowly opening a set of miniblinds and looking out a window onto the world. This is a novel approach I'd like to see incorporated into other software.

Most operations in Vista and Vista Pro can be aborted in progress. Both programs can load and render all of the same data files, while Vista Pro comes with more than twice as many ready-to-render .scape files as its smaller brother.

Pro's animation-scripting features are similar to Vista's, but with one important and unique added option. Virtual Reality's proprietary animation format is not keyed to the amount of memory in your Amiga but to the size of the disk or device to which you are rendering. This means that you could actually fill WORM drive with one 500MB animation and play it back on a low-memory machine.

After an animation has been scripted, rendered, and saved, the VAnim player reads each frame from disk and either displays it in animated sequence or lets you step forward and backward through it as you would with the "jog-shuttle" control on some fancy video-tape deck. VAnim's drawback is that each frame is about double the size of a regular ANIM frame, which means the playback is slower.

Both Vista and Vista Pro can save Turbo Silver-format object files. Vista Pro embellishes this feature by letting you clip out just a small area of a landscape at its highest rendering mode. This enables the creation of object files that are very detailed, yet not too large to load into Silver or Imagine. Both programs can ouput to a printer.

Vista Pro is one of the most enjoyable and fascinating pieces of software I've had the pleasure to use in a long time, and it is, by far, my favorite of the programs discussed here.

BROADCAST TITLER 2

From CG to shining CG

By Geoffrey Williams

I USE CHARACTER generators a lot, and InnoVision's original Broadcast Titler sounded like a dream come true when it first appeared. I quickly

discovered, however, that it was not sufficiently stable to use in an editing environment where any delay means a lot of extra money and an unsatisfied client. Happily, all that is changed now that I have the upgrade (\$389.95, but available to first version owners for \$40).

Broadcast Titler 2 (BT2) has not so far crashed on me, and I am impressed by the ease of use the mouse interface provides. You still have the option of keyboard control, but navigating through the various menus with the mouse is fast and simple. Clicking with

the right-hand button at any time brings up a menu along the bottom of the screen. I wouldn't say the program is really "Amigatized," but I found it intuitive and well laid out.

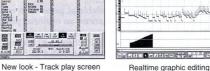
With BT2, you can either type text directly onto the screen or load in a text file (but don't expect word wrap). Its editing features include adjustable subscripts and superscripts, cursor positioning via the mouse, characterby-character underlining (with adjustable positioning, thickness and color), automatic or manual kerning, and adjustable margins. Line editing lets you ▶

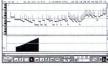
Master Tracks Pro, Music-X, DMCS, and Soundscape owners. Your Upgrade has arrived!

Just because the company that made your music software program has discontinued your program, stopped development, changed their focus, or maybe you just want more power, all is not lost. Dr.T's, the largest and most reliable Amiga music software company, is offering an upgrade path for your older program to help you get back on the cutting edge. We'll help you make more music!

If you're an owner of any one of the four programs listed above, we'll upgrade you to KCS V3.5 with Level II for \$195 (\$225 if you own DMCS). This is a \$400 value! 3.5 gives you 48 track drum machine style loop recording; realtime graphic note, controller, and tempo editing; automated MIDI mixing; standard notation and printing; and algorithmic composition. Just send us your master program disk or front page of your manual, and a check for either \$195 or \$225. UPS ground shipping in Continental US is included. Credit cards orders add \$4.









S MUSIC SOFTWARE

100 Crescent Rd. Needham, MA 02194 617-455-1454 voice 617-455-1460 fax

cut, copy and paste lines on the page or across pages. You can also copy the attributes of a character (color, font, size) and apply them to text elsewhere.

One of the best editing features is the ability to reduce by one pixel the spacing between all the characters in a line. This alone saves hours of frustration by letting you squeeze that extra letter or two onto a line. You can also *increase* the spacing by single-pixel increments.

GRAPHICS IN COLOR

You can import pictures and brushes into BT2, thus opening up some interesting possibilities. With full control over positioning, you can have a graphic at the top, import brushes to use as bullets, and have another graphic at the bottom, each one using a different 16-color palette. If you want to take full advantage of BT2's powerful color capabilities, you should design graphics specifically for it. Certain palette positions, however, are used for certain things, so you need to plan this all out before you create the graphics.

You can use color cycling, but it limits you to a single color-cycle range using palette positions 1–7. Color cycling affects all lines in these palette positions. Because you can make the colors completely different on each line of text, it is possible to create several cycle ranges—although they are limited to the same speed.

A good example of BT2's flexibility is that you can type a line of text, type another line below it, and then increase the height of the lower line so that it overlaps the upper one. By changing the face color in the lower line, you can easily create two-toned text. I did this, and then made a long drop shadow that overlapped the lower line, giving the text an extruded appearance. I added the two-toned effect to the extruded text, and was then able to type more text in a different color over the top of the drop shadow (see the screen shot).

Each screen can be shown for a set time, or it can wait for a key press, or you can have random access to any of the screens. You can even assign sequences of screens to function keys. A very handy program option is Presto Pages, which allows you to render a page to memory in advance so that you can make it pop up instantly, a



BT2's two-toned text effect.

distinct advantage if your Amiga is not accelerated.

TRANSITIONS APLENTY

BT2 provides many transition options. Each of the 77 full-page transitions has nine speeds, and there are 16 line effects that you can assign to individual lines in any order. You can also set some lines to have simultaneous transitions, and you can add a delay by a set number of video fields. The effects are remarkably smooth.

One cautionary note, however: While powerful and wonderful, the color-palette capabilities are much more complex to deal with when you're doing transitions. Horizontal transitions can cause strange effects when color palettes on individual lines change between pages. Careful planning with your palettes is very important.

I like this version of Broadcast Titler very much, although there are a few changes or enhancements I would like to see. When you click on a button, for example, there is no feedback to let you know you really pressed it. A tone would help. In addition, while you can save pictures as IFF (including text antialiasing), the picture is reduced to a single 16-color palette. It would be great if you could also save out to Dyanamic HAM, or even to 24-bit IFF, so that you might import the images into other software with enhanced color capabilities. Finally, I would like to see more control over color cycling.

Not yet available at press time was the Font Enhancer, an optional package that lets you convert single-color Amiga fonts to BT2 format, adding anti-aliasing and the ability to resize fonts cleanly. As only four font types come with BT2, any serious user will probably want this extra package. Another upgrade offer for A3000 owners provides four colors per line in

1472 × 480 resolution.

If you need professional and clean character generation, I would recommend that you put BT2 at the top of your shopping list.

BARS&PIPES PROFESSIONAL

The pipes, the pipes are calling...

By Michael Hanish

CHOOSING A TOOL for creative work is an important part of the endeavor; the choice reflects and determines how it will proceed. Bars& Pipes Professional (\$379, The Blue Ribbon SoundWorks) is a serious, multipurpose tool for people who are earnest about making music with sequencers. Fortunately, it is also straightforward and easy to use—even for the less experienced. The program's design allows you concentrate on making music rather than getting software to work.

Bars&Pipes Professional (B&P Pro) is structurally similar to its predecessor, Bars&Pipes (\$199—see April '90, p.84 for the review), a less featured but hardly unprofessional package. Briefly, the sequencer design is such that information travels through a pipeline system (represented graphically). First, you feed triggering and control data (including MIDI) into one end; then Bars&Pipes records and places notation while your data is traveling through. Finally, the program releases the information to a sound source on the other end.

While your data is making its way through the pipeline, you can transform, generate, or filter it at any point in the chain with the various tools provided. You can add, change, move and/or modify notes, dynamics, articulation, and other musical effects in the middle, or sequencer, section by using one of several graphic notations (an event list, traditional note/staff, piano roll, or a hybrid combination). The number of tracks is limited only by available memory.

There is also a Playback function, using Amiga-generated sounds or MIDI, that you control by tape recorder-style transport buttons in a movable window. Space prohibits a

comprehensive listing of features; suffice it to say that Bars&Pipes Pro can do just about anything.

THE RIGHT TOOLS

The concept of Tools, common to both programs, needs special mention before looking at what else makes this program a "pro" version. The tools are akin to the stomp boxes electric guitarists use, one each for flange, echo, reverb, and so on.

B&P Pro's program disk offers a wealth of such tools in the form of tiny software modules that you can place at the in or out end of the pipeline or use to process a marked section within the sequence. You can purchase additional specialized collections of tools (MusicBox A & B, Internal Sounds Kit, Multi-Media Kit, and Rules for Tools, \$59.95 each) separately. Each tool has a graphical control window you can use for setting its parameters in real-time as the music plays; and you can combine and edit several tools into a macro-tool.



Don't fret! Bars&Pipes Professional places you firmly in the driver's seat.

The B&P Pro Add-On Series provides a form of modular expansion and upgrade. You buy what you need. MusicBoxes A and B provide tools and accessories that further expand and amplify all the basic functions of the program. Among these are MIDI event (control, program and note) filtering and editing, chord generation, arpeggiation, multiple se-

rial-port support and display colors.

The Multi-Media Kit provides the means for integrating B&P Pro into a synchronized multi-program environment by using ARexx. The score can be controlled by external commands or can trigger other events by sending ARexx messages and simulated keystrokes at specific times. A Recorder tool captures and saves all the details of a performance, and you can call for playback as a background task when the sequencer is not running. Also included is a conversion utility between SMUS format and the B&P Pro song format.

The Internal Sounds Kit is just that: a pipeline sample-playing tool called AmigoPhone; SpareKeys, which allows for mouse and keyboard input as an alternative to MIDI control; and a wide-ranging collection of high-quality IFF instrument and sound samples. Finally, Rules for Tools opens up tool and accessory design to anyone familiar with C programming.

Continued on p. 74.

True digital photography for your Amiga computer



Through a special arrangement with Quintar™ Co., Liquid Light is now offering the Bell & Howell CDI-IV™ color digital film recorder for use with all Amiga computer models. The CDI-IV offers true color capability for all your Amiga images including IFF and HAM. All you add is the film and the imagination. Whether you need high quality 35mm slides, instant prints, overhead transparencies or even instant slides the CDI-IV has you covered.

The CDI-IV is shipped to you complete with a 35mm camera, instant print camera, software and cables. Everything you need to produce stunning images is right in the box. It plugs into the serial port of your computer so you can install it in minutes.

The manufacturers suggested retail for this system is \$3,995, but for a limited time you can purchase the complete CDI-IV at an introductory price of only \$1,895. Quantities are limited and this price will last for just a short while.

So give us a call today, With the CDI-IV you'll see your images in a whole new light. Liquid Light
Presentation Graphics Peripherals

To order call 213 618-0274

CDI-IV introductory price only \$1,895.

American Liquid Light, Inc., 2341 West 205th Street, Torrance, CA 90501 Tel: 213 618-0274, Fax: 213 618-1982 Bell & Howell, Quintar Co. and CDI-IV are registered trademarks of Bell & Howell Quintar Company.

800-558-0003

Comput Ability Consumer Electronics

800-558-0003

FLICKER FREE ICD VIDEO

Use standard VGA or multisyncmonitor & get FF Video on AMIGA 500/1000/2000

ICD AD SPEED All AMIGA Computers

- 14.3 & 7.16 MHz
- 100% Compatibility•No-Solder 32K Static RAM Caching

500 XP

20 Meg w/512K	\$359
52 Meg w/ 512K	\$489
52Meg w/2MB (1Mx4)	\$559
105 XPS w/512K	\$669
105 XPS w/2 MB (1Mx4)	\$729
FVFRYDAY I OW PRIC	FS!

w/MNP5 V.42BIS

AMIGA External

500& 2000

MODEN CABLE INCLUDED.

Expandable to 8MB 1MB \$125 \$205

Supra RAM 500

1/2MB Exp.-A500 All Supra Ram products come w/factory installed memory chips, fully warrantied by Supra. Watch for cheap configurations! Ask questions before you buy!

2 MB\$185	2					
4 MB - SUPER - \$259	4					
4 MB . SUPER . \$259 6 MB \$339	6					
8 MB\$415	8					
GREAT PRICES!						

NEW DRIVES

SAVE \$\$\$\$

40 Meg Internal Hard **Drive Package**

featuring 28MS 42.8 Meg Seagate 351A/X 1.5" hard disk drive

A500-\$359

A2000-\$339

Package includes:

AD-IDE, cables, Software and Drive

1.5 Hard Disk Drive For the A500 **Great Price at**

AD RAM 540 ØK

Exp. to 4MB **\$99**

Panasonic

PRINTERS LOWER PRICES!



200GX - Big Seller	\$1.59
GSX 140 - Great Price	\$285
GSX 145 Wide Carriage-NEW	\$385
Color Kit-200GX/GSX140	\$49
Color Kit GSX-145	\$.65

KX-P 1180\$149 KX-P 1624\$365 KX-P 1123\$229 KX-P 1654\$549 KX-P 1124\$249 KX-P 4420\$829 KX-P 1124i ...\$279 KX-P 4450iCall

NX 2420 Rainbow-HOT!\$299 NX 1001 Multifont NEW\$139 NX 1020 Rainbow NEW\$185 NX 2420 \$279

Seagate AMIGA 500/2000 HARD DRIVE PACKAGES

DRIVES	DRIVE ALONE	TRUMPCARD 2000	TRUMPCARD PRO 2000	SUPRA WORD SYNC 2000	AdSCSI 2080 w/ OK/8MB Exp.	TRUMPCARD 500			GVP Serll HC OMB Exp to 8MB	Datal 2000		Malibu Board 2000
ST 157N-1 49MB/28MS	\$229	\$335	\$415	\$319	\$395	\$415	\$465	\$375	\$415	\$315	\$355	\$335
ST 277N-1 60MB/28MS	\$279	\$389	\$469	\$369	\$449					\$369		
ST 296N 80MB/28MS	\$299	\$409	\$489	\$389	\$459					\$389		
ST 1096N	\$329	\$439	\$519	\$429	\$499	\$509	\$569	\$479	\$509	\$429	\$469	\$439

LOW PRICES

Quantum Drives

DRIVES	DRIVE ALONE	TRUMPCARD 2000	TRUMPCARD PRO 2000	SUPRA WORD- Sync 2000	AdSCSI 2080 w/ OK/8MB Exp.	TRUMPCARD 500	TRUMPCARD PRO 500	GVP Hd Card OMB	GVP Serii HC OMB Exp- 8MB	Data 2000	Flyer 500	Malibu Board 2000
52LPS	\$249	\$359	\$439	\$349	\$419	\$429	\$489	\$399	\$439	\$349	\$399	\$359
*105МВ	\$349	\$459	\$529	\$449	\$519	\$529	\$589	\$509	\$559	\$449	\$509	\$459
210MB	\$729	\$839	\$889	\$829	\$899	\$899	\$959	\$859	\$909	\$829	\$899	\$839

Quantity Limited!

800-558-0003

computAbility Consumer Electronics

800-558-0003



A500 w/52 Meg	\$599
A500 w/80 Meg	
A500 w/105 Meg	\$829
Uses Quantum Drives, come w	/ OK &exp. to 8MB
68030 ACCELE	RATORS

Series II for 2000 w/SCSI Controller 22MHz w/1MB exp. to 13 & Math Co ..\$849 33MHz w/4MB exp. to 16 & Math Co \$1589 **IDE CONTROLLER**

50MHz A3050 w/4MB + Math Cop....\$2299 Call for Quantum AT/IDE Drive Configurations

> See Opposite page for Series II Hard Card Packages

VIDEO PACKAGE

PANASONIC 1410 CAMERA•COPYSTAND w/LIGHTS.DIGIVIEW GOLD 4.0.

PRICE INCLUDES 16MM LENS W VARIABLE IRIS \$349 FIXED IRIS \$319

VIDEO TOASTER

CALL FOR THE LOWEST PRICE!

PERSONAL TBC

Time Base Corrector

CALL

AMIGA EXTRAS Call for New TI

\$59

\$389

\$929

DC IV	
At Once Adaptor 2000 \$79	
AT Once - PC Emulator \$259	
Audition \$59	
AE Hvy Duty Power Sup \$95	
AE High Density 3.5 Drive \$185	
Air Drive Int 3.5"-A3000 \$89	
AMAXX II\$137	
Ami Gen/Mini Gen \$89/185	
Big Foot Power Supply \$95	
Bodega BayCall	
Chroma Key/ Switcher \$329	
Color Splitter\$109	
Digiview Gold\$115	
ECE Midi Interface\$48	
Firecracker 2400 2 Meg CALL	
Flicker Fixer\$239	
Gravis Adv. Invetick \$31	

Gravis Mouse Stick

Hitachi KPC 5010

HAM/E Plus .

. 34.95

31 05 36.95 24 95 30.95 24.95

28 95 36.95 31.95 30.95

16.95 22.95 30.95 30.95 30.95 17.95 30.95

31.95 28 95 20.95

30.95

36.95

30.95 20.95 31.95 25 95

34.95

34.95 24 95

31.95

30.95

28.95

23 95

36.95

20.95

Sim City

_	Low I itee
\$79	Hitachi KPC 501G Cam \$1079
\$259	Internal Drive 2000\$75
\$59	MIDI Gold A500\$5
\$95	MIDI Gold Insider A2000 \$59
re \$185	Perfect Sound\$69
\$89	Safeskin 2000/500\$1
\$137	Video Blender Ca
89/185	Video Master \$999
\$95	
Call	for A500 or 2000
\$329	CSA Mega Midget
\$109	Economy
\$115	25MHz (No MMU)\$48
\$48	33MHz (No MMU)\$56

CSA Mega Midget 25MHz w/68030 0K Exp. 8MB \$599

Mem Card 4MB Exp.8MB \$749 Optional 68882 Math Cop \$199

GOLDENIMAGE® HAND SCANNER

w/MIGRAPH TOUCH-UP

For Amiga 500/2000/2500/3000

MASTER 3A-1 "THE ORIGINAL" 3.5" Micro Floppy **External Disk Drive**

3.5" Micro Floppy **Ext Disk Drive** w/LED Track Display for 500/1000& \$99

500/1000/2000

500/1000/2000 \$35 Replacement Mouse

Optical Mous GI 500 AMIGA 500

EXPANSION KIT Master3A-1+

512K RAM Exp. w/Clock Cal

1/2 Meg Ram Exp. w/Clock-Cal

2000

2MB RAM \$175 Exp. to 8MB

RECREATION	Dragon's Lair
	Dragon's Lair II/Time Warp
SOFTWARE	Dragon Strike
	Dragon Wars
688 Attack Sub	Drakkhen
A10 Tank Killer 30.95	Dungeon Master
Anarchy 24.95	Eagle's Rider
Arachnaphobia 28.95	East vs West Berlin
Armada 25/25 31.95	Elvira
Armour Geddon 28.95	Empire
Awesome 36.95	Escape from Singes Castle
Atomino 31.95	Eye of the Beholder
BAT 31.95	F-19 Stealth Fighter
Back To The Future II24.95	F-29 Retaliator
Bandit Kings/Ancient China 36.95	FacesTris III
Bane / Cosmic Forge 1MEG 36.95	Falcon
Bard's Tale III	Operation Counterstrike
Barney Bear each21.95	Operation Fire Fighter
Battle Chess	Fast Eddie Pool
Battle Command31.95	Flames of Freedom
Battle Isle	Flight of the Intruder
Battle Squadron24.95	Flight Simulator II
Battlestorm	Full Metal Planet
Bill & Ted's Excellent Advtr 24.95	Genghis Kahn
Biil Elliot Nascar Challenge 30.95	Golden Axe
Billy the Kid	Gunboat
Blood Relations	Hardball II
Blue Max	Harley Davidson
Bridge 6.0	Harmony
Buck Rogers31.95	Harpoon
Budokan	Battleset 2 or 3
Captive	Hoverforce
Cardinal of the Kremlin 30.95	Harpoon Scenerio Editor
Carmen San Diego/Each 30.95	Heart of China
Centurion	Heros Quest
Chamber/Sci-Mutant Priestess 30.95	Holyes Book of Games
Champions of Krynn 31.95	Hoverforce
Chaos- Dungeon Master 2 24.95	Hunt for Red October
Check Mate	Immortal
Chessmaster 2100 31.95	Imperium
Chuck Yaeger AFT 2.0 25.95	Indiana Jones-Graphic
Civil War	Indianapolis 500
Codename: Iceman	Ishido
Colonel's Bequest	Jack Nicklaus Unlimited
Conflict: Middle East	James Bond :Stealth Affair
Conquest of Camelot	Jones in the Fast Lane
Continuum30.95	Keys To Maramonte
Crackdown 17.95	King's Bounty
Crime Does Not Pay	King's Quest 1,2, or 3
Curse/Azure Bonds31.95	King's Quest 4 or 5
	Knight Force
Das Boot Submarine	Legend of Faerghail
Death Knights of Krynn 28.95	Leisure Suit Larry
Designasaurus 30.95	Loroute out Larry

30.95

24.95

39.95

Lost Patrol	31 95
M-1 Tank Platoon	36.95
Maverick	
Mavis Beacon Typing	31.05
McGee Fun Fair	
Mega Fortress	
Mega-Traveller 1	
Mercenaries	
Mid Winter	
Midevil Warrior	30.05
Might and Magic II	37.0E
Monday Night Football	20.05
Monopoly	20.00
Nations at War	27.05
Night Dawn	
Night Hunter	22.05
Night Shift	
Nitro Nobunga's Ambition	28.95
Obitus	
Operation Combat	
PGA Tour Golf	
Pick N Pile	
Planet of Lust	
Police Quest 1	
Police Quest II	36.95
Pools of Radiance	
Populous	31.95
Powermonger	31.95
Data Disk	
Prince of Persia	24.95
Pro Tennis Tour 2	31.95
Projectyle	
Quest for Glory 2	
Railroad Tycoon	
Raw Copy	
Red Baron	
Red Storm Rising	34.95
Renegade Legion	37.95
Rise of the Dragon	36.95
Risk	24.95
Robocop	28.95
Robocop II	28.95
Romance of 3 Kingdoms	42.95
Rules of Engagement	37.95
Scrabble	24.95
Search for the King	
Second Front	31.95
Secrect of Monkey Island	37.95
Secret of the Silver Blades	31.95
Sex Vixens-Outer Space	22 95
Sextimates	
Shadow of the Beast	30.00
Shadow of the Beast II	36.05
OTHER OF THE DEAST II	00.00

NAME OF TAXABLE PARTY.	
Terrian Editor	. 14.95
Ski or Die	
Sorcerian	. 36.95
Space Ace	
Space Quest 1 or 2	. 30.95
Space Quest 3	. 36.95
Spellbound	24.95
Star Control	30.95
Star Flight	
Stellar 7	
Stunt Track Racer	24.95
Stratego	
Street Rod II	25.95
Strike Aces	30.95
Strip Poker 2	24 95
Super Off Road Racing	25 95
Swap	30.05
Teenage Mutant Ninia Turtles	28 95
Tennis Cup	
Tetris	
Terrain Envoy	
Test Drive II	
Data Disks ea	15.05
Test Drive III	CALL
Their Finest Hour	20 05
-Third Courier	
Time Machine	
Ultima 4	
Ultima 5	
Universe 3	
Universal Military Sim 2	36.05
Vaxine	
Vette	
Warhead	31 05
Warlord	
Welltris	
Where in the Carmen each	30.95
Wolf Pak	
Wonderland	
World Class Soccer	24.04
Wrath of the Demon	CALL
X Copy Professional	47 Q5
Xenomorph	
Yeager's Adv. Train 2.0	25 95
rougor o nuv. Hall 2.0	. 20.00
The second second second	

PRODUCTIVITY SOFTWARE

	Anti Virus Device	41.95
	Art Department Pro	139.95
	Audio Master 3	64.95
	Aztec C Developer V5.0	177.95
	Aztrec C Pro V5.0	119.95
	BAD 4.0	27.95
	Bars & Pipes	119.95

See according to Management
Bars & Pipes Pro 224.95
Baud Bandit 28.95
Broadcast Titler 2.0 224.95
Byte N' Back 39.95
Can Do 84.95
Pro Pack 124.95
Comic Setter 41.95
Comic Art Disks ea
Copist Apprentice85.95
Copyist DPT 194.95
Copyright
Cross DOS 2.024.95
Deluxe Music Construction 61.95
Deluxe Paint III94.95
Deluxe Print II 51.95
Deluxe Photo Lab
Deluxe Productions 128.95
Del Vid3 w/Del Photolab 94.95
Design Works
Digidroid
Digimate 3
Diginate 3
Digiview gold114.95
Director 2.0
Disk Labeler 24.95
Disk Master 28.95
Dos 2 Dos 30.95
Draw 4D147.95
Dynacadd 669.95
Elan Performer 2.0 87.95
Electric Thesaurus
Excellence V2.0 104.95
GFA Basic 3.5
Gold Disk Office
Gold of the Aztec
Heros Quest
Image Finder 41.95
Imagine 194.95
Invision + 174.95
Karafonts ea 44.95
Keyboard Control Seq. 3.0 159.95 ·
Lattice C SASC V.501 194.95
Mavis Beacon Typing
Mega Paint 174 95
Midi Recording Studio 39.95
Mind Link
Moonlightr Ami Back
Movie Setter
MR Backup
Music X 169.95
Music X Jr 87.95
On Line Platinum 41.95
Page Setter 2 71.95
Page Stream V2.1 165.95
Buddy System29.95

Business For	ms 24	4.95
Postscript Fo	nt Disks 24	4.95
	nts 2-	
Pelican Press	6	2.95
Phantom Symi	ote Intreface 21	4.95
Phasar 4.0	5	1 95
Photon Paint 2	.0 8	7 QF
	24	
Dower Window	rs 2.5 5	4.JU
Drint Macter D	lus 24	4.30
	1 13!	
Foot Dooks		9.93
Dro Video Dool	18!	9.90
	5:	
Pro Write 3.0	8	9.95
Professional D	raw11	2.95
Professional P	age 2.0 ip Art 3	Call
Structured CI	ip Art31	5.95
Templates	31	6.95
Project D V2.0	3	5.95
	ar 5	
Quarter Back	4	2.95
	ools5	
	4	
	3	
Roll'em	81	6.95
RX Tools	3	5.95
Scala	269	9.95
Scene Generat	or2!	9.95
	214	
Soft Clips Vol.	1,2, 3 or 4 4	1 95
	6	
Sterling Service	e BBS 84	1 05
Superhase 4	30!	0.05
Superbase Per	sonal 2 8	7 05
Superbase Pro	3.0189	0.00
Cuperblan	8	7.06
T 1/ Chow 1/2 /	0 64	1 00
	79	
Title Bage		0.00
Transportito	4	1.00
	0 1 Meg 73	
	64	
TV Text	-lI	1.93
IV Text Profes	sional 99	9.90
Ultra Design	164	1.90
Video Effects 3	-D 113	3.95
	.5 92	
Video Tools	182	2.95
VideoScape 3D	V2.0 184	1.95
	face 104	
	nal 88	
Voice Recognit	tion 109	9.95
Works, Platinu	m 112	2.95
) 28	
WShell	28	3.95
X Copy Profess	sional 47	7.95

Dick Tracy

Dino Wars

INFORMATION 414-357-8181 FAX 414-357-7814 P.O. BOX 17882

Lemmings

Leisure Suit Larry 2 or 3

Milwaukee, WI 53217 HOURS-CST MON-FRI 9am-9pm SAT 11am-5pm

NO CREDIT CARD SURCHARGE



ORDERING INFO: Specify system. For fast delivery send cashier's check or money order. Personal & company che allow 14 business days to clear. P.O.'s welcome. C.O.D. charges are \$4.00.In Continental U.S.A. include \$4.00 for allow 14 obsiness days to clear. P.U.'s welcome. E.U.U. charges are \$4.00 in cominated U.S.A. include \$4.00 for clear P.U.'s welcome. E.U.U. charges are \$4.00 in committed U.S.A. include \$4.00 for clear places include card \$4.00 for clear places include card \$4.00 for clear places include card \$4.00 for clear places include \$5.50 masterCard \$4.00 for clear places for clear clear places include \$4.00 for clear places include \$5.50 master places \$5.50 master place authorization number. Call (414) 357-3181 to obtain an \mathbb{A} \mathbb{A} and our creturn will not be a coepied. Prices and availability subject to date to have priced by the company of the effort to be complete, some new products may not be available from the manufacturer at press time

THE AMIGAWORLD CATALOG

\$5.00 HOWER

VIDEOS

Order now and save \$5.00 off the retail price and get a \$5.00 savings coupon good towards your next TechMedia Video purchase!

The Amiga Primer

Anyone with an Amiga — whether a new owner or an experienced user — will find this easy-to-follow video invaluable. Applicable to all Amiga models, The Amiga Primer presents System 2.0 and AmigaVision™ the Amiga Workbench, the CLI, peripherals, and utilities in an entertaining format with vibrant graphics and upbeat music. There's no easier way to master your Amiga! #TMAP 90 minutes \$29.95



FREE!

Psygnosis Lemmings™ Game Demo Disk

with your order

NewTek's Video Toaster

The Video Toaster™ from NewTek is hailed as the world's first video computer card enabling broadcast-quality production on desktop. Whether you are considering the purchase of a Toaster™ or are just curious about all the excitement, the Video Toaster™ video tape provides in-depth informa-



- adding and testing other essential equipment
 selecting source material and processing
- selecting source material and processing speed
- manipulation of many digital video effects including flips, tumbles, mirrors, spins, splits and titles
- producing 3-D animationspainting on video images

See for yourself what the amazing Toaster™ can do!

#TMVT 45 minutes

es \$24.95. \$19.95

Hot Lear pow value extended are considered and considered and considered are considered and cons

Hot Rod Your Amiga

Learn how to get maximum power from your Amiga. Get valuable advice on how to expand memory internally and externally; select and install hard drives, memory boards and accelerators; back-up software and utilities; RAM and drive space differences; and other useful tips. Hot Rod Your Amiga also covers the revolutionary

Video Toaster™ and other high-end peripherals such as DCTV. Soup up your Amiga now!

#TMHR 45 minutes

\$24.95 \$19.95

Animation Video Volume II

In response to the clamor for Longanother Amiga animation video-Awaited tape, the AmigaWorld editors have created Animation Video Volume Volume II. After sifting through hundreds of contest submissions and viewing countless hours of animation clips, the result is a showcase of scintillating animations, technical brilliance and imaginative plots. You'll be thoroughly entertained as you absorb new techniques and ideas. Whether you just brought your Amiga home from the store or have created your own animations before, you'll want to add Animation Volume II to your Amiga video collection!

#TMAV2 90 minutes

24,95 \$19.9



Desktop Video, Volume I

Whether for home or studio use, Desktop Video shows you how to utilize your Amiga in conjunction with a video camera to

create professional-quality productions with live video and animation techniques. Learn how to select a genlock; build a desktop video system; choose and use a video camera; create scripts, storyboards and titles. Plus tips on editing, adding sound, special effects, and much more. A must for any video enthusiast!

#TMDV 84 minutes

29.95

\$24.95

Call Toll-free 1-800-343-0728

THE AMIGAWORLD CATALOG

@ lasert autes in some @ Single @ Churcks Adva

The Musical Amiga

With detailed insight from some of the best-known Amiga musicians, The Musical Amiga

teaches you how to create both simple tunes and complex musical compositions. Sessions on MIDI systems include sequencing, editing and synthesizing. Learn the techniques used in digital sound sampling, sound manipulation and creation of unique sound effects. Accompanied by an entirely Amiga-produced soundtrack, this dynamic video is sure to enlighten you with the remarkable musical potential of your Amiga!

#TMMA

60 minutes



Amiga

Amiga Graphics

Amiga Graphics is all you need to explore the extraordinary graphics capabilities of your sophisticated Amiga. Learn the pros and cons of the most popular paint programs. Get three intensive sessions on fonts, clip art and digitizing, as well as in-depth coverage on the elements of design and style. Amiga Graphics also illustrates interlace functions, when Hold And Modify (HAM) should be used, and covers smearing, washing, tinting and perspective. An invaluable tool for any artist!

#TMAG 54 minutes



Amiga is a registered trademark of Commodore Business Machines, Inc.

Video Toaster is a registered trademark of NewTek, Inc.

Animation Video, Volume I



A best-selling video, containing commercially broadcast and award-winning animation art, this video will fascinate, entertain and inspire you as it demonstrates the amazing capabilities of Amiga animation. Each of the many animations is accompanied by unique music and sound effects, and is prefaced by the artist's name and a listing of all the animation products used. Experiment and explore the endless possibilities yourself!

#TMAV 48 minutes

\$19.95 \$14.95

AMIGA BOOKS

New Edition!

AmigaWorld Official AmigaDOS 2 Companion



by Bob Ryan

Harness the power of the new AmigaDOS 2! The Amiga Companion is back - in a

revised and

expanded edition for AmigaDOS 2.

It's your expert guide to the new DOS, filled with hundreds of instructions, tips & techniques not found in any other book.

Covers:

- · The Amiga OS, including Workbench, Shell & ARexx
- · The Workbench GUI
- · Workbench menus and tools
- · The 13 Preference Editors
- · The Extras 2 disk
- · AmigaDOS handling disks, files & devices
- Configuring AmigaDOS
- · Manipulating files with Copy, Delete, MakeDir, Rename
- · AmigaDOS command scripts and shortcuts
- · The ARexx macro language and a fully annotated program to customize
- · Plus over 100 screen shots, command references, a valuable glossary, and an error code summary for solving problems more easily!

#1-878058-09-6

416 pages

\$24.95

AmigaWorld Official AmigaVision Handbook

by Louis Wallace

NEW

Express your creativity on the Amiga — with this complete guide to the new AmigaVision! The only authoritative guide to the hottest program for your Amiga. Written in an easyto-follow style and heavily illustrated, with over 150 screen shots, this book provides a step-by-step primer for mastering AmigaVision.

Special Features:

- ·What exactly multimedia is, the art of authoring, the basic menus, common requestors, and program editing information
- · Control commands covering: interrupts, database icons, wait icons, audiovisual icons, and module icons
- · In-depth editors, tools, and programming information
- · Valuable appendices filled with advice on the best hardware and software products for AmigaVision, and a special guide to version 1.7.

#1-878058-15-0

353 pages

\$24.95

Call Toll-free 1-800-343-0728

The AmigaWorld Catalog • PO Box 802 • 80 Elm Street • Peterborough, NH 03458

THE AMIGAWORLD CATALOG



TECH IOURNAL Your source for advanced technical information

Whether you're a programmer or a developer of software or hardware, you simply can't find a more useful publication than this. Each big, bi-monthly issue is packed with fresh, authoritative strategies and advice to help you fuel the power of your computing. In every issue of The AmigaWorld

TechJournal, you'll find:

- · Practical hardware & software reviews
- · Step-by-step, high-end tutorials on such topics as 3-D graphics algorithms and implementations, handling HAM, C compilers, and more
- · Good programming practices to help you make the jump from BASIC to C. or C to assembly, or tie everything together with ARexx
- · Tips, news and tools covering commercial software, books and talk on the networks
- · Programming utilities from PD disks, bulletin board systems and networks

PLUS! Each issue comes with a valuable companion disk, including executable code, source code and the required libraries for all our program examples-plus the recommended PD utilities, demos of new commercial tools and other helpful surprises. Order your one-year (6 bi-monthly issues, plus 6 invaluable disks) Charter Subscription to The AmigaWorld Tech Journal for the special price of \$69.95. That's a saving of \$25.75 off the single copy price! MONEY-BACK GUARANTEE. If at any time you're not satisfied with The AmigaWorld Tech Journal, you're entitled to receive a full refund-no questions asked.

1 Year (6 issues/6 disks)

#TJSUB

\$95.70 \$69.95

The AmigaWorld Tool Chest

Quality Software at an Affordable Price



Buy any two AmigaWorld Tool Chest back issues, and get a third one FREE!

#TC11. Fix corrupted disks or recover accidentally deleted files. Sit back and enjoy original animation and sound clips. Enjoy colorfully wacky, shoot-'em-up arcade fun. Create singleor double-image icons, in four to eight colors. Get a rich assortment of HI-RES clip art monsters.

#TC12. Save money with a utility program that enables you to format disks that AmigaDOS chokes on. Generate different types of graphs. Cut out an excellent collection of B&W clip art for your desktop publishing or graphic design needs.

Generate an incredible

assortment of colorful patterns. Add dazzle to your animations with detailed 3-D spaceships. **#TC13.** Plot your biorhythms. Make drivehead cleaning easier. Create spectacular

images with Mandelbrots. 3-D objects perfect for ray traced animations. A CLI utility to help you find files quickly and easily. Plus holiday clip art, an AmigaFlight animation, and a technical discussion on how AmigaDOS stores information to disk.

#TC14. A 3-D graphics special issue, containing vector objects, TicTacToe, a graphing program, and 3-D ray traced animation. Keep names and addresses organized with a friendly database and address book. Perform an analysis of digitized sound and display it in a graphic manner. Get B&W clip art food images suitable for desktop publishing.

#TC15. A best-selling issue! Combine great graphics with digital sounds to get an entertaining Amiga version of the classic connectthe-dots game. Insert a nice assortment of digitized animal sounds into your animations. See an instructive rendering of Cartoon Man in various stages of animation. Test your reflexes with a high-speed arcade game. Make multiple copies of custom labels.

#TC16. Generate complex 3-D vector objects of a wide variety of terrain,

> from flat plains to rocky mountains. Plot out mathematical equations. Format your text files to print on both sides of the paper. Plus six digitized sounds perfect for animations and multimedia presentations and a mouse-driven graphic adventure

game with excellent digi-

tized sounds. Also includes Tinyball, "The World's Smallest Baseball Arcade Game." ■ **#TC21.** Battle your computer to take over the planet Circe. Assign RGB values to printer and screen output. Get a powerful database Create animated sprites by editing up to 100 frames at once. Execute CLI programs, batch files and ARexx scripts with the simple click of





THE AMIGAWORLD CATALOG



#TC22. Design instruments and waveforms for use in other programs. Play your Amiga keyboard like a piano. Change the width, height, location, title, colors and depths of the CLI window with a single command. See how a piston works with a Turbo Silver animation. Plus a slick checkbook manager and a file encryption and decryption tool.

#TC23. Create small windows from CLI scripts. Find the letter, file or program you misplaced on your drive. Play the strategic game of Dyno-Wars. MatheMagic lets you find the day of the week for any date in this century; provides the mean, standard deviation, skew and kurtosis for selected data; finds a polynomial to a set of XY data; and solves a set of algebraic equations.

#TC24. Create tables suitable for text and graphics integration. Link a text-based document to other applications with a hypertext program. Automate your Little Black Book. Plus a drawer with four disk and memory utilities and a colorful solitaire game called Color Logic.



FREE!

Psygnosis Lemmings™ **Game Demo** Disk

with your order



Save your screen to an IFF file. One or two can play "Warrior", a fun shoot-'em-up adventure game. See how fast your Amiga does solid-polygon animations. Change the colors of your screen. Examine memory at any location in the Amiga. Also includes Hi-Res IFF brushes of all 50 states and 10 Canadian Provinces.

INTRODUCING

The AmigaWorld Game Package

A classic three-disk entertainment package combining great graphics, super sound effects and loads of arcade action. . .

Snakeskin Shootout. Experience the action of a Wild West shootout as you rescue the beautiful Truplie Triplets from the nasty Grumpley

Lunatic. Accept the mission to retrieve a Sacred Ghetto Blaster from the moon and bring it back to an ancient Mayan Pyramid.

Deluxe Poker. Practice your hand at AmigaWorld's version of Video Poker.

TinyBall 1.1. Enjoy real ballpark sound and action in "The World's Smallest Baseball Arcade Game".

GeoRoll. Geometric shapes add a unique twist to this two-player Triple Yahtzee-like game.

...and more! Not available anywhere else, so order your package today!

13 games #GD1

\$16.95

Become An **AmigaWorld Tool Chest** Subscriber!

From graphics to animation, from programming to productivity, and from utilities to games, you can do it faster and easier with the Tool Chest. If you want your Amiga creations to be the very best, subscribe to the Tool Chest today.

As a Tool Chest subscriber, you are entitled to these exclusive privileges:

- \$17.75 off the single-issue price.
- · The lowest possible rates on any AmigaWorld products, including AmigaWorld subscription and renewal discounts.
- * Discounts off AmiEXPO admissions.

FULL MONEY BACK GUARANTEE. If you are not completely satisfied with the AmigaWorld Tool Chest, we'll send you a refund — no questions asked.

#TCSUB 6 issues \$77.70 \$59.95



Call Toll-free 1-800-343-0728

From p. 67.

This package contains all the source code and instructions necessary, as well as The Blue Ribbon Sound-Works' active solicitation of freelance programmers for work to be included in future MusicBoxes.

B&P Pro has a somewhat new look compared to Bars&Pipes; it comes in the Workbench 2.0 style and colors (though these can easily be changed). All features (transport controls, tracks, metronome, and so on) are in movable, resizable windows. The icons along the right side provide instant access to any unopened windows, such as ToolBox, Tempo Map, Song Construction and Accessories. The configuration of the work space (window placement, function and look) is saved with the data of the song.

There are a number of notable enhancements to the original Bars&Pipes—too many to list in full. One of the best is the addition of print capabilities. The program displays each track in standard bar-andstaff notation for editing, and it automatically updates the notation to reflect any changes you make. You can then print the parts separately, or together as a concert or transposed score. B&P Pro sends all of this to the printer as a graphic image. Printing, although rather slow, is of quite acceptable quality. The program formats on a track-by-track basis, which at times is a bit clumsy. A global print format requester would be helpful, as would a way to send the score image to a Postscript printer.

A LITTLE MUSIC, MAESTRO!

Another wonderful new feature called MixMaestro automates mixdowns of recorded tracks. When MixMaestro's window is open, you can access the familiar slider and pan-pot mixing controls—one for each recorded track. Although these two controllers can send any MIDI-control change messages, they come preset to send volume and pan messages. This is an incredible pleasure to use and a tremendous help in post-production.

Not only does B&P Pro save the mix, but it also saves and replays all the real-time changes made in the mix while the song is playing. With the addition of the The Phantom (\$299), the SMPTE interface device from Dr. T's, you can easily accomplish frame-accurate sync and cue to tape—all from within the program by

using the Phantom accessory included with B&P Pro.

Other enhancements and additions include full clipboard support and editing (both track-by-track and globally), an ARexx port, system exclusive data record and transmit, graphic time-line scoring, song construction and tempo mapping, a background player program for single songs or juke-box multiple plays, and all the tools necessary to synchronize sound and images. B&P Pro comes with a basic assortment of tools and accessories on one non-copy protected disk. It requires a minimum of 1MB RAM to run, installs easily on a hard disk, and works in any Amiga system configuration under either Workbench 1.3 or 2.0.

In use, the program is stable and dependable. Tech support is friendly and extensive, the best one could hope for. Overall, B&P Pro is a comprehensive, deep, and flexible music creation and performance environment. The few times it behaved in unexpected ways, I had not set something correctly in one of the several layers of parameters. The price of flexibility is having to pay attention to all the options.

If there is something you want to do with music and the Amiga, B&P Pro can do it thoroughly, elegantly, and in more ways than you can probably imagine. It provides control down to the smallest details of the musical material, but its architecture is conducive to proficiency on many levels.

Bars&Pipes Professional won't do all the composing for you, but time spent learning to use this excellent program will repay you amply, widening the way you think about music making. The design facilitates all the functions of the program, making it a pleasure to use, which is the highest compliment that can be given to any tool.

DCTV

When it comes to video, looks are everything.

By Sheldon Leemon

THE AMIGA'S 4,096 colors, which seemed so dazzling back in 1985, are beginning to look a bit faded next to the new 16 million colors in PC and

Macintosh displays. In a bid to add more zip to the Amiga's output capabilities, *Digital Creations* has come up with DCTV (\$495), a unique hardware device that turns digital data from the computer's RGB video port into a composite television signal with the potential to display millions of colors.

Since most Amiga owners don't have a ready source of true-color images to display, DCTV also includes a slow-scan digitizer for capturing images from any still video source. To top it all off, the package contains a generous helping of software, including a real-time, million-color paint program and a program to convert your DCTV screens (or any 24-bit color image) to one of the Amiga's standard display modes.

The hardware component of DCTV is a four by five-inch box with two cables that plug into the Amiga's RGB-video and parallel ports. The video connector, which provides the DCTV display, has a plug on one end and a jack on the other, so you can connect DCTV and your RGB monitor cable at the same time. The parallel-port cable, which is used only for the DCTV digitizer, has no pass-through, so you have to unplug your printer when you want to digitize, or plug both cables into a switch box.

You also get two RCA connectors for Video In (used by the digitizer) and Video Out (used by the DCTV display). There are an adjustment knob and a screw, as well as software to aid in any necessary minor adjustments.

Once you plug DCTV into your RGB video port, you need a composite monitor to display its output, because the device turns specially-coded RGB display data into a composite TV signal. You still need your RGB monitor, however: DCTV's display supplements that of the normal RGB, but does not replace it—you cannot run Workbench or any other program not designed especially for DCTV on its display.

Fortunately, most Amiga owners use a monitor like the Commodore 1084, that works in both RGB and composite modes, thus allowing DCTV owners to switch from the normal display to DCTV by pushing a button. Those using an RGB-only monitor must have a second monitor

for DCTV, though only one is active at a time.

If you wish, you can record DCTV's output directly on your VCR without a genlock encoder. Because the signal is already composite, you cannot use a genlock to superimpose a DCTV picture over live video. DCTV does not interfere with normal genlock functioning, however, so you can keep both devices plugged in at the same time. For those who wish to use DCTV with a genlock such as Digital Creations' own Supergen, the company plans to offer in the near future an RGB adapter that will let you use DCTV on the same RGB display as your other Amiga programs without switching.

UNDER THE RAINBOW

DCTV works by using the RGB port as an I/O port that sends information to DCTV at a speed appropriate for video. This information, which is encoded into special Amiga display screens that DCTV recognizes by a "signature" in the upper left corner of the screen, is a digitized and compressed form of the analog waveform data required to create the composite display. With this information, DCTV turns the RGB data into a TV picture.

The television picture that DCTV creates is far better than the normal Amiga RGB display for some purposes, and far worse for others. For pictures that contain a lot of color changes, like photographic material, DCTV provides the same quality of image that we see every day on television. But when it comes to images such as text that require a lot of detail, DCTV's display is as blurry as trying to watch computer output on your TV. In short, like TV, DCTV is great for displaying images, and useless for tasks like word-processing or desktop publishing.

DCTV produces a television signal instead of a computer display, so it would be misleading to talk about its display resolution in computer terms by discussing pixels, or bits of color per pixel. There are no distinct dots of color on a TV screen; colors blend into one another on each line of the display. So while DCTV software may internally compose pictures from 24 bitplanes of 736 × 482 display data, the output really is not comparable to a 24-bit RGB display. The most accurate way to describe it is to say that it produces pictures indistinguishable from standard color TV pictures.

Because DCTV creates its display from special Amiga screens, you can use only Digital Creation's custom software to create these screens. Fortunately, the package includes all of the software you will need to do useful work. This consists of three modules: Digitize, Paint, and Convert. Although these programs will run (with some minor limitations) on 1MB of RAM, at least 2MB is the preferred configuration, and some of the more full-featured software that Digital Creations has on the drawing board will require upwards of 5MB.

SCANNING IMAGES

Digitize lets you capture video images as DCTV pictures. This is a one-pass process, and you can use any composite color signal (without a signal splitter). The digitizer is not a framegrabber, however. A complete scan takes from six to ten seconds, which means that you can use only still video sources such as a video camera trained on a still photo, a VCR or laser disk with a clear still-frame feature, or a still video camera.

The digitizer software has a pause feature that allows you to create spe-

cial effects like moving objects in midscan for a "melting" effect, or digitizing a person in one part of a room, pausing, and then digitizing him somewhere else. Once you've captured an image, there are settings that allow you to adjust the color, tint, brightness, and contrast.

When you've got the image you want, you can save it in one of three formats. The DCTV "raw" and 24-bit IFF file formats both save all of the information that was captured. The DCTV raw file is smaller (about 500,00 bytes), but can only be read by DCTV. The 24-bit IFF file is larger (around 800,000 bytes), and it can be read by some existing Amiga applications that use hi-res files, such as desktop publishing programs.

The third format, the DCTV display file, saves just the Amiga screen data that produces the DCTV picture. This is a standard Amiga IFF file, and can vary in size from eight-color 640 × 200 (about 36,000 bytes) to 16color 736 × 482 (about 145,000 bytes). You can display this file from most

Continued on p. 78.



UPGRADE/REPLACEMENT CHIPS	ICD PRODUCTS	MEMORY EXPANSION
Fatter Agnus (8372A)See below	A500 Products	512K (A501) RAM Mod\$ 49.50
8362 Denise Half Bright26.50	AdRAM 540 ØK\$ 97.50	1x4/80 SC Zip for A300034.95
8364 Paula chip26.50	AdRAM 540 1MB125.00	1x1/100NS7.50
8320A CIA chip15.50	AdRAM 540 2MB152.50	256x4/12 all ICD, GVP, etc5.50
1.3 ROM Kickstart27.95	AdRAM 540 4MB207.50	1x8/80 SIMM49.95
2.0 ROM KickstartCall	AdRAM 560D178.00	1x8/100 SIMM48.95
5719 Gary chip14.50	A2000 Products	HP Laser Memory Board
A500 Keyboard109.50	AdRAM 2080 ØK114.50	1 Meg99.95
A2000 Keyboard114.95	AdRAM 2080 2MB185.00	2 Megs147.95
PLCC Agnus chip puller8.95	AdRAM 2080 4MB253.00	4 Megs229.95
AT-Bridgeboard A2286 Complete	AdRAM 2080 6MB321.00	Insider II BD for A1000269.95
Kit - Super price499.00	AdRAM 2080 8MB389.00	AMIGA POWER SUPPLIES
DIAGNOSTICS	AdSCSI 2000127.50	A 1110 (A 11 A 11 A 11 A 11 A 11 A 11 A
	AdSCSI 2080 ØK184.50	A500 45 watt (hvy duty)67.50
Amiga Diagnostician: Book/	AdSCSI 2080 2MB276.50	
Software/Schematic14.95	AdSCSI 2080 4MB368.50	A2000 Replacement P/S147.00
A500 Service Manual34.95	AdSpeed207.00	MISC, PRODUCTS
A1000/2000 Serv. Manual44.50	Flicker Free Video306.00	
SAMS ComputerfactsCall		FlickerFixer234.50
Dr. Ami (software)29.35	O 12 V1	Printer Port Adapter (runs any

Dr. Ami (software). 29.35 OUR 12TH YEAR! AMI Alignment System .28.50 Low cost/remanu. printheads Cal

HOT AMIGA UPGRADES MegaChip 2000 ™ —Upgrade your A2000 to 2MB of chip RAM. Includes A3000 2MB Agnus chip\$339.00 less rebate.

Fatter Agnus (8372A) 1MB w/chip puller (a necessity) with instructions. ... Multistart II-NEW ROM switch for 3 ROMs for A500 / 1000 / 2000 Keyboard Controlled ... \$87.50 Switch Activated Version. 150 Watt "Big Foot" A500 Universal Power Supply with fan. An absolute must for those adding on more memory ... \$87.50 Emergency Amiga Startup Kit-Sold to government PXs and now available to all. Kit has major chips, parts, schematic, instructions and diagnostic software programs, etc (everything needed to get it started) \$99.50 ..\$479.00

Rejuvenator A1000-Upgrade board with everything, including diagnostic software package (\$30 value) Diagnostic Trouble-shooting Software (STU), a terrific diagnositc package & absolute must (all Amigas) by Global Upgrades, Inc.



SEND FOR OUR FREE 36 PAGE CATALOG 3 Chestnut Street • Suffern, NY 10901 Order line only 1-800-292-7445
Customer Service (914) 357-2424 Fax (9 Add UPS charges to above



CBM printer to PC)



We ship worldwide

\$29.95

34.95

rices subject to change

Circle 20 on Reader Service card.

Mail order made easy...Call for a complete listing...Mail order made eas

Tired of knowing more about Amiga video than the people you **VIDEO** buy it from? The technology is ex-HARDWARE panding so rapidly it's hard to keep up. So we've brought in some video experts to help you make the right selections. 16mm Lens w/ Variable Iris Amigen CBM2320 Display Enhancer \$269 Chroma Key Switcher \$339 Color Splitter \$109 DCTV \$399 DPS Personal TBC \$799 Firecracker 2400 \$859 Flicker Free Video \$309

\$535

\$295

\$call

\$199

\$189

\$239

\$call

\$669

\$call

\$1.119

\$1.449

Blistering speed means satisfaction.

SHOWMAKER \$1399

Time on Your AMIGA! ve Finished Production to Video Tape! CONTROL YOUR VIDEO TOASTER!

GRAPHICS

3D Professional

Amiga Vision

Digipaint v3.0

ound to the Bear

Create Productions of

Control External Devices

like the Video Toaster, LaserDisc, VCRs, Writeable Optical Disks, MIDI!

Virtually Unlimited Length!

• Edit Productions in Real

Produce perfection. Whether in print, on screen, or in video, your work is a reflection of you. It must be creative and it must be perfectly as you visualize it. Make it so. Because the powerful image, presentation and video tools you need are available to you, on your Amiga.

Amiga Vision Handbk \$18 \$99 Art Department Pro Broadcast Titler II \$229 Deluxe Paint v3.0 \$96 \$62 Digiview v4.0 Director V2.0 \$82 MAKES DESKTOP VIDEO A REALITY! Disney DynaCADD

\$135 \$109 \$689 Hyperbook \$64 \$209 Professional Draw 2.0\$129 Pro Conversion Pack \$59 Pro Video Gold \$169 Pro Video Post \$219 Scala \$259 Sculpt/Animate 4D TV Text Pro \$369 \$109 Video Titler v5.0 \$99 Video Titling Starter Kit \$179 Vista Landscapes each \$50 Vista Pro

MODEMS

a wise choice. With the size of files going up and the price-performance ratio coming down, slow modems just don't make sense. Raw speed is important but don't forget about data compression If you have questions we'll be glad to help.

Awesome modem speed is suddenly

AE DataLink Express ext. MNP & SendFax \$239 AM24 Mini Modem \$79 Baud Bandit MNP5 \$139 Courier HST 38.4 \$629 Courier HST Dual Standard \$939 SupraModem 2400 \$98 SupraModem 2400zi \$119 SupraModem 2400 Plus MNP5 v.42bis \$175 Modem/Phone Switch Box \$125 Telecommunication Software

Atalk III Terminal Software \$63

Baud Bandit Software Paragon BBS \$107 Sterling Service BBS \$89 Call the new, improved Briwall BBS at (215) 683-7499. 300/1200/2400 baud, 24-hours, with a full catalog

*GVP Series 2 HC8/52MB Quantum

*GVP Series 2 HC8/105MB Ouantum

GVP Series 2 HC8 A500 40MB Fujitsu

GVP Series 2 HC8 A500 52MB Quantum

GVP Series 2 HC8 A500 80MB Maxtor GVP Series 2 HC8 A500 105MB Quantum

Supra 500XP 052MB Quantum & 2MB

Supra 500XP 100MB Quantum & 2MB

Wordsync A2000/052MB Quantum

Adide *AT* Drive Interface

GVP Series 2 HC

ICD Advantage

Wordsync

GVP Series 2 HC8

ICD AdSCSI 2080

IVS Trumpcard Pro

* Deduct \$40 for no RAM capability

*GVP Series 2 HC8/200MB Maxtor

*GVP Series 2 HC8/80MB Maxtor

and ordering online!

BAUD BANDIT BUNDLE 2400 baud modem. Baud Bandit terminal software and a cable only \$119

Drive Packages

\$499

\$619

\$599

\$949

\$589

\$649

\$729

\$889

\$629

\$889

\$405

\$159

\$199

\$139

\$194

\$209

\$109

\$149

\$157

\$99

SCSI Controller Boards

Floppy Drives Some programs seem designed to encourage disk-

Frame Grabber

Kitchen Sync

Showline TBC's

SuperGen 2000s

Video Blender

VideoMaster

VideoToaster

Panasonic WV1410 Camera

RocGen RG300C Genlock

Ham-E

Minigen

Supergen

swapping! They tell you to insert disks so many times that you're getting disk-swappers' cramp! Who says you can't get excercise from a computer? But who wants to? AE High Density 3.5" \$199 AMAX Compatable 3.5" \$189 AE 880K 3.5

Air 35 \$85 Master 3A-1D 3.5' Chinon A2000 int. 3.5" Roctec 5.25 \$149 Roctec Slimline 3.5"

When you double-click, results ACCELERATORS happen, right now. We want you to experience this satisfaction. So we help you choose a board matched to your system. And since we've fully test and configure your board, it's ready to go when you receive it.

GVP Combo 33Mhz w/4MB \$1,689 GVP3050 50Mhz w/4MB \$2,399 MegaMidget Econ. 25Mhz \$499 MegaMidget Econ. 33Mhz \$599 MegaMidget Racer 33MHz \$749 AdSpeed

GVP Combo 22Mhz w/1MB \$889

A SCSI controller, a memory board (with up to 16MB on the 33MHz version), and an accelerator board with math co-processor, all wrapped up in a neat little package. Call us for suggestions on drives

GVP's combo boards do it all!

HARD **DRIVES**

Floppies are a pain and you've had enough. You need the freedom and safety of a spacious hard drive. We offer the best hard drives available with the controllers that make sense for your system. Your selection will arrive ready to run because we pre-test and format it. **SCSI Hard Drives** Maxtor 080MB 3.5" LP SCSI

\$419 Maxtor 213MB 3.5" HH SCSI \$739

Quantum 052MB 3.5" LP SCSI Quantum 105MB 3.5" LP SCSI Quantum 105MB 3.5" LP SCSI Quantum 105MB 3.5" HH SCSI \$299 \$499 \$429 Quantum 210MB 3.5" HH SCSI \$799 Ricoh 050MB Removable w/1 cart \$819 Seagate 048MB 3.5" HH SCSI \$269 Seagate 084MB 3.5" HH SCSI \$389 Syquest 044MB Remyble w/case&cart Syquest 088MB Remyble w/case&cart \$1049 Tape backup Units \$call Optical and large capacity drives \$call

AT Hard Drives \$309

\$295 \$399 \$269

Hardframe Dataflyer A500 w/case Dataflyer A2000 IVS TrumpCard 500 w/case

Let us put a custom drive package together for you! Call 1-800-638-5757 for details.

Even choosing the software you need is difficult these days

Memory requirements, and version changes can confuse

MEMORY

more memory, but you're not sure of your options. When you call Briwall, we help you choose a memory board for your system. On many boards, we even install the chips and test the board to assure that everything works when you get it. Call for details.

You realize that you can really use

A2000	0MB	2MB	4MB	8MB
GVP RAM8/2	n/a	\$205	\$309	\$499
Supra8	\$105	\$209	\$299	\$489
A500	0MB	2MB	4MB	8MB
Baseboard	\$109	\$205	\$299	n/a
Supra 500RX	\$139	\$209	\$389	\$529
	e 512K R	AM expansi	ion as low a	s \$49
A3000	4MB of	Static Colu	mn ZIPs	\$329

A1000 256K front panels as low as \$79 MegaChip 2000 \$239 *DRAM prices are subject to change

Microbotics 8-up! A2000 Memory Boards Populate your A2000 now with the lowest prices ever!

2MB--\$179 4MB--\$249 6MB--\$319

Firecracker 2400 A true, 24-bit graphics display board from Impulse for the unbelievably low price of \$859!

Conner 020MB 2.5

Maxtor 040MB 3.5"

Maxtor 080MB 3.5"

Quantum 040MB 3.5

Quantum 080MB 3.5

You can scan it in, roll it in, draw it in, or push it in. If it sends the data to your Amiga we call it an input device. Don't know what these products do? Call us, we'll

Input Devices

be glad to explain.

Amtrac Trackball \$68 AproDraw 12x12 \$489 Beetle Mouse \$42 Boing Optical Mouse \$92 GI Hand Scanner \$289 Golden Image Mouse \$36 GI Optical Mouse \$65 Gravis Joystick \$35 M4 Mouse \$39 RocTec Mouse \$39 Sharp Color Scanners call Sharp JX100 Scanner w/Scanlab \$699

SketchMaster 12x12

\$389

SOFTWARE

Ami...Alignment

AmiBack

Arexx V1.0

Blitz BASIC

CrossDOS v4 0

\$389

your purchase decision. We help you sort out the issues, and can help you get your software installed when your order arrives. Just call our Techline if you have any problems.

Excellence V2.0 \$129 Office \$185

Productivity PHASAR v4.0 \$58 Pagestream v2.1 \$189

\$64 \$95

Pelican Press *NEW* PenPal Prof. Page v2.0 \$199 \$109 Prowrite v3.0 Saxon Publisher \$229 SuperPlan \$95 Superbase V4.0 Scall Wordperfect

\$149 Your Family Tree \$52 Utilities

\$29

\$52

\$32

\$105

\$26

AudioMaster III Bars & Pipes Pro Dr T KCS V3.5 Dr T Tiger Cub

Doctor Ami.. Janus Libs. V2.1 Defender of Rome \$call \$189 Lattice C++ Lattice C v5.1 \$199 adventure has finally Maverick V2.0 \$29 Project D v2.0 \$36 Quarterback v4.0 Quarterback Tools \$53 SuperCard AMI \$72 Music Gold Insider MIDI \$64

\$29

grown up **Briwall Price \$34**

CENTURION

The cinematic

\$64

\$237

\$249

\$62

\$49

\$99

\$65

\$189

STREET ROD 2 It's not the same old drag Choose from 25 hot cars, 60 accessories and 4 racing strips

Briwall Price \$27

Call for Entertainment software, Books and titles not listed!

ECE MIDI External

Phantom (SMPTE)

Future Sound

Perfect Sound

lail order made easy . . . Call for a complete listing . . . Mail order made

Dazzling performance from your Amiga 1000 is available with any of **AMIGA 1000**

these exciting expansion products. You can add memory, storage, speed, or all three. Installation isn't always easy but we're ready to help you get your purchase up and running. Just call our TechLine

You want your good ideas to look

good on paper too, so you need a

printer that shows them off. But

drivers, and the software you're

using all affect which one is best

for you. Tell us your needs and we'll be happy to help.

\$600

\$519

\$429

\$189

\$539

call

\$689

print resolution, available printer

Solid Products and Solid Support

\$219 Adspeed Fastrak SCSI + Case \$299 Insider II (0K) \$199 Insider II (1.5MB) \$289 Keyboard call Kwikstart A1000 \$88 MegaMidget Racer 25mhz \$499 MegaMidget Racer 33mhz Minimegs 2MB \$599 \$259 Rejuvenator 1000w/Agnus

A1000 Starboard Owners

Last chance for great prices on · Starboard accesories!

SCSI Module--\$65 Upper Deck--\$32 Multifunction Module--\$45 (sorry, no Starboard 2's available)

All A1000 owners

CDTV

Call for

pricing and

availability

of latest titles

Upgrade to 512K for just \$79 Add a clock with Mousetime for \$27 The second of th

DKB

Innovative solutions to specific needs

Megachip 2000 (A2000) \$239 Install 2MB of chip RAM with this great board. Just add a 2MB Agnus.

Multistart II (A2000) Compatibility problems with V2.0 Kickstart? Switch between 1.3 and 2.0 with the keyboard!

Insider II (A1000) .5MB \$239 (1MB-\$259 1.5MB-\$289) Battery-backed clock and calendar, with up to 1.5MB of internal RAM.

Kwikstart II (A1000) Install both Kickstart 1.3 and 2.0 with this handy little board.

SMICROSHARCH ChromoKey



Why buy mail order from Briwall?

1. Technical expertise to help you make the right decision. Buying the right product isn't easy. The broad selection makes it tough enough but new versions, compatibility problems, and functionality issues make it even tougher. We don't just take your order; we work with you to match your needs with the right products.

Pretested products to help ensure that your purchase works. Our inhouse, trained technicians pre-test memory boards, hard drives and many other products before they leave our door. When you get it, it works.

3. Technical expertise to help get your purchase up and running. Hardware peripherals are not always easy to get running. So we won't abandon you after the sale. We offer a free technical installation service for all hardware items. If you need us, call us and we'll walk you through the set-up.

Warranties and guarantee. Buying mail order can be intimidating but we make it easy and safe. We guarantee that if your purchase doesn't run on your system, we'll work with you unit you are satisfied. We also offer an extended warranty program, so call for details.

Our personal services help you pick the right product and get it running on your system quickly.

DHL

Canadian and Overseas

customers are shipped DHL

Rates as low as \$15 to Canada!

Check our delivered price!

Okidata Laser 400 Sharp JX730 Color Ink Jet 1699 Call for paper, ribbons, ink, etc

MISC. **PRODUCTS**

PRINTERS

Canon BJ330 Bubble Jet

Citizen GX140 (24 pin) Citizen GX145 (wide)

Citizen GX200 (9 pin)

HP DeskJet 500

Laser Printers

Canon PJ1080a Color Ink Jet

Expanding and enhancing your system is part of the fun of owning a computer. When you're ready to try something new, give us a call. We'll let you know what is available and help you choose the right product to enhance your system.

\$239

A500 BigFoot	\$92	AE Power Supply	\$89
AmiTote 500/2000	\$65	ATOnce A500	\$299
Bodega Bay	\$399	Bomac Tower A2000	\$259
CBM2232	\$319	CBM520 Vid Adaptor	\$45
Disks 3.5", 25pack	\$19	Multistart II	\$85
Stereo Speakers	\$36	Switchbox a/b/c/d	\$29

Video Specials A great start to a professional video package!

BCD-5000 Video Controller--\$1919

Digiview Gold 4.0, Panasonic 1410 camera

w/variable iris lens, copystand and all cables Complete Package -- \$399 NewTek's Video Toaster and DPS Personal

TBC, buy together and save -- \$2209

Polaroid Digital Palette CI-3000 -- \$3599

GREAT PRODUCTS AT LOW PRICES!

RocGen -- External genlock for the Amiga 500/2000 with

fade control

RocTec 512K RAM expander for A500

\$39 RocTec Amiga Mouse

RocTec 3.5" ultra-slim 880K

external floppy drive with low \$94 power consumption

RocTec 5.25" 360/720K \$149 external drive

RocKnight -- Hardware-based anti-virus protection \$45

THE ICD ADVANTAGE

\$219 AdSpeed Low-cost, low-power accelerator for your A500/1000/2000. Best overall performance of any accelerator in its price range!

\$309 Flicker Free Video

Eliminates interlace flicker on any Amiga computer when used with a VGA or multisync monitor.

\$109

Put low-cost, *AT* drives on your Amiga with the smallest Amiga HD interface ever made. Available for 2.5" or 3.5" drives.

Novia20i

Now, an internal hard drive for your A500! Get a 20MB internal hard drive system with this package. (call for other sizes)

(USA and CANADA)
Outside USA: (215) 683-5661 Tech Suppo Tech Support (215) 683-5699 FAX (215) 683-8567 Customer Service (215)683-5433

□ Any Visa and MasterCard accepted with NO surcharge

Hardware shipping charges vary depending on weight and value. Call for best method and cost.

☐ Software shipping charges are \$4.50 per order via UPS ground to anywhere in continental USA

☐ All orders over \$300 are insured at customer's expense.

Federal Express® Charges for all orders under 20 pounds 2nd Day Delivery \$12 Next Day Delivery \$17

BRIWALL

P.O. Box 129/58 Noble St.

Our freight charges are fair! Kutztown, PA 19530 Order lines are open 24 hours (Briwallians are in 9-8 EST) Store hours: Monday - Friday 9AM-6PM, Saturday 9AM-12Noon

From p. 75.

Amiga programs that display IFF files, but you'll only get a faint gray picture unless you have the DCTV device attached.

POWERFUL PAINTER

The second program in the set, Paint, can be used to touch up a digitized image or to create a painting from scratch. Since Paint will read just about any Amiga IFF file (including HAM), you can use it to convert normal Amiga images to DCTV format for further enhancement. Many DCTV owners I've talked to say that Paint is the best paint program they've ever used. One reason may be that it's the only Amiga program that makes painting with millions of colors as easy as painting with sixteen colors in DeluxePaint. Another is that the program has plenty of fancy features, some of which break new ground.

One of Paint's innovative features, called the Mixing Area, allows you to create new colors by smearing dabs of primary colors together, as you would with an artist's palette. Another is the Watercolor brush mode, in which your brush stroke becomes lighter as

your brush "dries out."

Paint includes, of course, all of the standard features, such as a wide variety of drawing tools, cut and paste, stencils, and fills of various sorts. In addition, Digital Creations added many refinements to these standard tools: gradient fills that allow up to 25 color ranges; Tint mode, which changes only the colors of an object and not its surface detail; and Filter mode, which helps get rid of false colors and fringing in order to produce "legal" video.

For all of its superior features, Paint is far from perfect. There is no Undo feature (mainly to keep the program running on 1MB machines), text handling is awkward, and the menu structure is very confusing at first. Digital Creations promises a 1.1 version soon that will add Undo, better text, and ARexx support.

CONVERTING DCTV PICTURES

The last program in the trio is Convert, whose main function is to con-

vert DCTV pictures into any of the standard Amiga modes. Since it loads just about any kind of IFF image file, you can use it to convert pictures from one Amiga format to another.

Convert has all of the same imageprocessing options as Digitize (including adjustments for color, contrast, etc.). There are three dithering options, which help to maintain the illusion of color when converting to a mode with fewer actual colors. You can force a picture to use a particular palette, which is handy for combining pictures that originally used two different palettes. In other words, Convert gives you all the tools you need to create the best possible image when converting a picture from one mode to another.

Although DCTV is a stand-alone system, it integrates more closely with the Amiga than you might think. DCTV pictures store as regular IFF files, so you can display them on any 512K Amiga with DCTV attached. This means you can use DCTV pictures with slide-show programs or authoring systems like AmigaVision (Commodore) or CanDo (INOVAtronics). DCTV can also be used to create and edit 24-bit graphics files for desktop publishing, and many Video Toaster users I have talked with find its Paint program better suited than Toaster Paint for altering Toaster

Although DCTV display images do not have the same resolution as Toaster images (looking as though they came from a VCR, as opposed to a laser disk), they take up only about a tenth of the disk space, so that DCTV can decompress fast enough to play them back on the fly. This means that you can create a series of 24-bit files with high-powered, 3-D animation programs like LightWave, convert them to DCTV display format, and combine them into an ANIM file for playback at close to 30 frames per second on an A3000. DCTV even makes it possible to play back full-motion video ANIMs that are virtually indistinguishable from videotape.

DCTV is an innovative product that breathes new life into the Amiga display system. Its built-in digitizer provides high-quality images for use with Amiga programs. Its versatile software makes painting and processing colorful images a snap. And its price makes it affordable for just about anyone who wants to work with TV-quality graphics.

SCALA

Stepping up to the multimedia plate.

By Loren Lovhaug and Frank Hudson

IF YOU ARE ready to take a swing at multimedia presentations, a slideshow program is a good place to start. If the program in question is Scala from *Great Valley Products* (\$395), you may be surprised at how far this program can take you.

Scala, a desktop-video/presentation package that lets you create visual aids for presentations and self-running displays, is extremely easy to install, learn, and utilize. When you open the box, you find eight disks bearing the program, two disks of typeface, and five disks of background screens, clip art, and palette files. To achieve the best results, you need an Amiga equipped with 1MB of chip RAM, and although it is possible to create Scala presentations without one, a hard drive is highly recommended.

To develop Scala presentations (also called scripts), you create and manipulate lists of screens—a completely object-oriented and menu-driven process. Throughout the program, Scala presents you with a variety of options in the form of on-screen buttons and requesters for shaping your presentation.

Scala's main menu consists of a series of blank slots. By filling these slots with instructions, you can define page-screen order and indicate pauses (defined in seconds) or transitional effects (wipes). Altering the order of your presentation's components is as simple as dragging a slot's contents to a new location. With the buttons located below the slots, you can load, save, or preview your show and change or delete screen-page definitions.

Scala provides a varied selection of elements for each screen page, including an IFF background image, text, IFF brushes, ANIM files, and interactive on-screen buttons. The brushes, however, are not terribly exciting images, as they consist mostly of pictogram figures. Again, Scala's requesters and selection gadgets help

you define each element's attributes. You can alter the order in which these elements appear with a list metaphor similar to the main menu's screenpage list.

Determining the way each screen will look begins with defining its background. You can load any IFF image as a background, or you can choose a blank background screen. Scala comes with 59 of some of the most attractive background images I've seen, including several mineral and fabric textures. Although the rest of the package supports overscan, these backgrounds are not in overscan format, so you must convert them manually if you plan on using Scala for video).

THE GOOD WORD

Scala's strong suit is its text facilities. Not only does the program offer some of the more common text-manipulation features—margins, tabs, and line spacing, for example—but it also includes some rather unusual op-



A sequence of events in Scala.

tions such as special effects (shadows, 3-D extrusions and others), boldface weights and italic slants, adjustable inter-character spacing, and the ability to vary the weight and placement of type. Scala supports all standard Amiga-bitmap screen fonts, including ColorFonts. The program supplies 17 typeface families with large point sizes appropriate for video display work. They are all standard designs—such as Futura, Garamond, and Gill Sans—

whose clean appearance makes for legible video displays.

In a fashion similar to desktop-publishing programs, Scala lets you place and move text freely on screen. The program applies such text attributes as bold and italics to whole lines or groups of lines at a time. Although this scheme prohibits you from italicizing single words or parts of lines, you can move separate lines of text so they appear to be on the same line.

To save a little time, you can save sets of formatting decisions (fonts, font colors, font attributes, margins, and tabs) as a Scala .layout file for use as a simple style sheet. Finally, Scala can read and render standard text files on screen according to your layout settings.

FONT FANDANGO

Scala provides a choice of 50 transitions to enliven your text, ranging from simple directional animation to the much more interesting venetianblind, spiral, escalator, and fadecut effects. The speed at which these transi-

F A X F A S T

9 6 0 0 B A U D

CLICKFAX

FULL RECEIVE AND TRANSMIT FAX SYSTEM FOR THE AMIGA

Introducing the extinction of the manual FAX. ClickFAX is a feature-packed, full-spectrum FAX system for all Amiga computers. The system includes an external modem, cable and complete support software.

SUPER FAST

CONVENIENT

 $ClickFAX \ supports \ both \ sending \ and \ receiving \ FAX \ documents \ at \ up \ to \ 9600 \ baud, \ with \ 1D \ or \ 2D \ compression - Up \ to \ four \ times \ faster \ than \ other \ Amiga \ FAX \ modems.$

The standard telecomm modem capability supports 300, 1200 and 2400 baud with MNP level 3, 4 and 5 support. You never have to disconnect ClickFAX to get onto BBS systems, networks and other services. ClickFAX can read ASCII text files, IFF graphics files and precompressed ".fax" files created by itself or the AE "SendFAX."

THREE COMPLETE USER INTERFACES ECONOMICAL You can utilize all of the system's features from the WorkBench using the mouse, from your CLI or Shell using simple typed commands, or via ARexx from any application, script or macro.

All the speed, versatility and convenience of the ClickFAX system, including modem, cable and software, is only \$449.95.

FREE DEMONSTRATION

For more information, call (406) 367-5509, and we'll FAX you all the specs and an example of the high quality transmission you can enjoy with ClickFAX.

BLACK BELT SYSTEMS

398 JOHNSON RD, CILASCOW, MT 59230
SALES: (800) TK-AMIGA INTERNATIONAL SALES (406) 367-5513
BBS: (406) 367-ABBS FAX: (406) 367-AFAX
Amiga" Commodore Business Machines: ClickFaX" Black Belt Systems

tions occur is entirely up to you.

In addition to backgrounds and text, screen pages can include multiple IFF brushes or ANIM-5 files (such as those created with DeluxePaint). Scala lets you control the frames-persecond (1–60) display and repeat rates. You can also instruct the program to place text strings at the beginning and end of ANIMs. For example, you could place the words "here comes the pitch" on the first screen of an ANIM file depicting a baseball pitcher throwing a fastball, and then display the words "strike one" at the end.

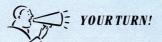
Scala lets you build a little interactivity into your presentations. You can add one or more hot spots on a screen page so that if Scala detects a mouse click on one of them while your presentation is running, the presentation will jump automatically to a predefined screen page and execute from that point on. Scala also recognizes the two mouse buttons as a forward- and backward-stepping remote central

Throughout the entire creation process, you never need to use complex programming constructs or remember parameter sequences. However, if you examine the program's script files with a text editor, you will encounter a whole new dimension of Scala. It turns out that Scala's basic engine is an applications generator utilizing a high-level programming language called Visual. If you wanted to take the time to learn Visual, you could write an entire "Scala" presentation. Although this is an interesting intellectual exercise, there is no added benefit to coding your presentation in Visual as opposed to utilizing Scala's slick user interface. There is, however, one area where a knowledge of Visual would help.

A MINOR ADJUSTMENT

Scala includes a utility that allows you to play Scala presentations without loading the entire program. In this way, you can play your presentations on machines with less that 1MB of chip RAM and ethically distribute presentations to people who do not own Scala. For smaller presentations, you can create a self-booting "runtime" disk that automatically copies all the necessary font and graphic files as well as files necessary for Scalaplayer to function.

This abridged approach breaks down, however, when a presentation's size exceeds one disk. The files needed for the presentation are scattered throughout multiple disks and



Scala is a tremendous program. I do video titling and animation on the Amiga, so I put it to a lot of good use. It does everything that Pro Video Gold or Post does, and you can overlay text, bring in wipes and fades in animations, and seamlessly join several animations with different palettes.

Art Warsell Philadelphia, Pennsylvania

are not linked to the AmigaDOS diskname. So even if you supply the delivery system with multiple disk drives, your presentation will not run unattended. You can get around this by manually modifying Scala's Visual control language, substituting full AmigaDOS path-names (including the disk's name) for the less-explicit Visual specification.

Another problem we discovered with Scala's run-time creation system is that it failed to work correctly when the run-time disks were created under Workbench 2.0. This is because the run-time disk, when booted, expects to issue a stack command explicitly from the C directory of the run-time disk. Under 2.0, the stack command will not copy to the runtime disk because it is actually built into the AmigaDOS Shell.

Scala's documentation is pretty good, especially when it comes to teaching the basic rudiments of creating Scala presentations. The manual includes numerous illustrations and a number of step-by-step tutorials. However, the manual has no index and is strangely incomplete when it comes to demonstrating requisite video techniques, such as scrolling text completely off the screen (for rolling credits) and creating transitions for IFF brushes (the same transitions available for text will work). The addition of tutorials describing these common techniques would greatly enhance Scala's documentation.

Compared to other Amiga multimedia packages such as The Director (Right Answers Group), CanDo (INOVAtronics) and AmigaVision (Commodore), Scala offers less support for complex user interaction and lacks even token support for sound and music. But for slide-show presentations, Scala becomes an attractive product and a pleasure to use. In only minutes, you can construct im-

pressive slide shows with just the fonts and backgrounds the program supplies. You can also move smoothly between pictures and easily convey textual information on screen. But most importantly, Scala users need less knowledge of programming concepts than is required for other multimedia programs.

(Editor's note: At press time, we were informed of an update that we were unable to obtain in time to include in this review. Version 1.1, free to registered users of Scala, is said to have real-time antialiasing of any Amiga font or brush, continuous scrolling titles, full outline-font support under Workbench 2.1, automatic remapping of brushes, ARexx support, Canon Xapshot RV-311 control, and a superimpose transition for blending two pictures. There are plans for future music and sound support.)

WORKBENCH MANAGEMENT SYSTEM

Button up!

By Morton A. Kevelson

IMAGINE SEEING AN array of all your favorite programs displayed for you immediately after you boot your Amiga. "But wait," you respond, "that is exactly what happens now." If you think back a moment, though, your Workbench screen really does not present all your program icons ready for execution. First, you must doubleclick on a disk icon to open its window. Then you have to locate the program icon you want and double-click on that. If your system has a hard drive, your programs are probably neatly organized in nested drawers several levels deep-possibly within different partitions. That's a lot of clicking!

Workbench Management System (WMS), on the other hand, lets you access applications with a single mouse click. Once installed, WMS (\$49.95, *TTR Development*) presents selected programs as an array of text buttons. You can arrange your buttons neatly in rows, columns, or rectangular grids, with as few or as many as you like—up to the limit of your screen. An 80-column, noninterlaced, Workbench screen can display as many as 77 buttons (with a maximum of ten characters identifying each). An interlaced screen can accommodate

Continued on p. 84.

FOR ORDERS AND INFORMATION IN 1 (800) 759-6565

(718)692-0790 **OUTSIDE USA & CANADA CALL** Order Hours: Mon-Thurs, 9-7/Fri, 9-6/ CLOSED Sat/OPEN Sun, 9:30-6(ET)

AMIGA WORLD 7/91

OR WRITE TO:

MONTGOMERY GRANT: MAIL ORDER DEPT. P.O. BOX 58 BROOKLYN, NY, 11230 FAX #7186923372 / TELEX 422132 MGRANT

WE INVITE CORPORATE AND EDUCATIONAL CUSTOMERS. DISCOUNTS FOR QUANTITY ORDERS. RUSH, 2nd DAY AND NEXT DAY AIR DELIVERY
AVAILABLE ON REQUEST!

NO SURCHARGE FOR CREDIT CARD ORDERS **CUSTOMER TOLL-FREE TECHNICAL SUPPORT**

PENN STATION, MAIN CONCOURSE RETAIL OUTLET (Beneath Madison Sq. Garden) NYC, 10001

Store Hours: Mon-Wed, 9-7/Thurs, 9-8/Fri, 9-6/CLOSED Sat/OPEN Sun, 9:30-6(ET) FOR CUSTOMER SERVICE & ORDER STATUS CALL: (718) 692-1148

CUSTOMER SERVICE HOURS: MON-THURS 9am-5pm/FRI 9am-4pm /SUN 10am-4pm









AIR DRIVE Internal Drive for A-2000	\$89
AMIGA 1000 Memory, Parts	
& AccessoriesAVAIL	
AMIGA 1000 RF Adaptor	\$29
AMIGA 1000 1200 Baud Modem (Voll	(s)\$59
AMIGA 3000 32 Bit MemoryAVAIL	ABLE
AMIGA 1.3 ROM (8850)	\$49
AMIGA 1MB	
Fatter Agnus Chip (8372A)	
AMIGA 2000 Power Supply	\$169
AMIGA Replacement Parts Availab	le
A-MAX Emulator II	\$129
APPLIED ENGINEERING	
1.52MB High Density Drive	\$199
BOMAC Tower (A-2000)	.\$239
CALIFORNIA ACCESS CA-880	
ONEII OITHIN NOOLOO ON OOO	

3.5" DISK DRIVE.....\$95

ATonce PC/AT Emulate A-2000	\$239 Adaptor for
	IN STOCK!
	A Martin

By CALIFORNIA ACCESS Expansion Console - Turn your AMIGA 500 into a A-2000 Compatible CALL FOR LOW PRICE!

COLORBURST	\$469
COLOR SPLITTER	
DAKOTA SKETCHMASTER12x12	
DAKOTA SKETCHMASTER 12x18	
FLICKER FIXER	\$235
FLICKER FIXER PAL	\$269
FLICKER FIXER DEB-2000	\$99
FLICKER FIXER GENLOCK OPTION.	\$49

HAM-E	\$295
HAM-E HI-RES	\$379
LIVE! A-2000	
PANASONIC 1410 CAMERA	\$179
SHARP JX-100 Color Scanner	
w/Software & Cables	\$669
SHARP JX 300	\$1799
STEREO SPEAKERS	\$34
VIDEO PACKAC	5 Ka
AINTO LUCUAL	

GENLOCKS MINIGEN \$188 MINIGEN PAI \$229 SUPER GEN. \$619 SUPER GEN 2000S .\$1339 VIDTECH VIDEOMASTER .\$1049 VIDTECH SCANLOCK CALL

WITH LIGHTS	DIGIVIEW GOLD 4.0
w/FIXED IRIS w/VARIABLE IR	DIGIVIEW GOLD 4.0 \$339 RIS \$369
XETEC CDX-65	OE\$669 0i\$589

PANASONIC PV-1410 VIDEO CAMERA COMPLETE w/16mm, LENS COPYSTAND

moration

500XP HARD DRIVES Expandable to 8MB

512K, 20MB	\$369
512K, 52MB	\$489
512K, 80MB	\$559
512K, 105MB	\$669
2MB, 20MB	\$439
2MB, 52MB, (1MBx4)	\$599
2MB, 52MB	\$559
2MB, 80MB	
2MB, 105MB	\$729
2MB, 105MB(1MBx4).	\$789



SUPRA RAM 500	47
SUPRA RAM 500RX, 1MB\$	L28
SUPRA RAM 500RX, 2MB\$	189
SUPRA 3.5" EXTERNAL DRIVE\$98	

SUPRA RAM 2000

0K	\$105
2MB	
4MB	\$249
6MB	\$319
8MB	\$389

CHIDDA MODEMS

OUT IM INCOME	
2400 EXTERNAL w/CABLE	
2400 ZI INTERNAL	.\$114
2400 MNP	.\$145
2400 PLUS w/MNP5, V.42 bis	.\$165
2400 Zi PLUS	\$159
9600 PLUS	



CHROMAKE Put Live Video in front of Computer graphics!

CO-PROCESSOR & 32 BIT MEMORY BOARDS AVAILABLE

MEGAMIDGET RACER

25MHz. (A-500, A-2000).. 33 MHz. (A-500, A-2000).



25 MHz. (A-500, A-2000) 33 MHz. (A-500, A-2000)





The Amiga Desktop
Video Workbook\$29.95
Material Texture
Library, Volume 1\$39.95
Color Splitter\$109.00
Autolink \$44.95





DATA FLYER

HEAVY DUTY



(R)

GOLDEN IMAGE AMIGA 500/1000/2000 COMPATIBLE REPLACEMENT MOUSE...\$35 GOLDEN IMAGE OPTICAL MOUSE.....\$49

MASTER 3A-1 Disk Drive.....\$79 MASTER 5A-1 5.25' \$149 Disk Drive CORDLESS TRACKBALL

CORDLESS MOUSE EXTERNAL RAM for A-500 (2MB Expandable to 4MB-Fits Bus Slot)

Handscanner

GOLDEN

w/Migraph

IMAGE

CALL FOR LOW PRICE!

AMIGA 500 Expansion Kit

Master 3A-1 Disk Drive Golden Image 512K Expansionwith Clock, Calendar

Touch-up Software

TURN PAGE FOR MORE AMIGA VALUES

MEMORY EXPANSION FOR A-500 (USES A-501 EXPANSION SLOT)

OK\$9	2MB	\$175
512K\$119	3MB	\$229
1MB\$13	5 4MB	\$259
2MR DAUGHTER		



M|O|N|T|G|O|M|E|R|Y| G|R|A|N|

AMIGA WORLD

) **759-656**5 INFORMATION IN 1 (800) **USA & CANADA CALL**

(Beneath Madison Sq. Garden) NYC, 10001

Store Hours: Mon-Wed, 9-7/Thurs, 9-8/Fri, 9-6/CLOSED Sat/OPEN Sun, 9:30-6(ET) FAX #7186923372 / TELEX 422132 MGRANT

OUTSIDE USA & CANADA CALL (718)692-0790

Order Hours: Mon-Thurs, 9-7/Fri, 9-6/ CLOSED Sat/OPEN Sun, 9:30-6(ET)



WE INVITE CORPORATE and EDUCATIONAL CUSTOMERS. DISCOUNTS FOR QUANTITY ORDERS. RUSH 2nd DAY AND NEXT DAY AIR DELIVERY AVAILABLE ON REQUEST!

ADIDE W/SEAGATE 43MB 1.5" HARD DRIVE For A-500.....\$349 For A-2000.....\$329

> AD-SPEED ACCELLERATOR FOR ALL AMIGA COMPUTERS (14.3 MHz)

\$99 ADIDE 40 (3.5"Kit) ADIDE 44(2.5" Kit) \$109

AD-RAM 540 MEMORY EXPANSION FOR A-500 OK.....\$99 (Expandable to 4MB) AD-RAM 2080 Memory Expansion for A-2000..... AdSCSI 2000..... ..\$129 AdSCSI 2080 exp. to 8MB....

New!

NOVIA 20i 20MB Internal Drive for A-500

PROGRESSIVE PERIPHERA & JOFTWARE



FRAME GRABBER

NEW 68040 EXCELLERATOR

BOARD	CALL
FRAMEGRABBER 256	\$499
FRAMEGRABBER PAL	\$619
MINIGEN	\$188
MINIGEN PAL	\$229
QICTAPE External Tape,	\$499

VIDEO BLENDER \$1139

new!

SERIES II A-2000/22 MHz/ 1MB Expandable to

13MB/68882/SCSI....CALL A-2000/33MHz. 4MB Expandable to 16MB/68882/SCSI.....CALL

SCSI HARD DRIVE PKGS AVAILABLE CALL FOR LOW PRICES

GVP 3050 Kit (50Mhz.) w/68030, 4MB Exp. to 32MB, 68882.

GVP 3050 Kit w/Quantum 40MB ..add \$280 GVP 3050 Kit w/Quantum 80MB..add \$470 GVP 3050 Kit w/Maxtor 210MBadd \$950 GVP A-500 HD 8+0/42F. \$599

GVP A-500 HD 8+0/52Q GVP A-500 HD 8+0/80M. \$659 GVP A-500 HD 8+0/105Q \$819 RICOH 50MB Removable w/Cart.

Aſ SCSI CONTROLLERS

.\$169

INCLUDES CABLES &

(210MB)

Color Option Kits......

FLICKER

FREE

VIDEO

\$295

TRUMP XETEC Fast Trak A-500 AdSCSI DATA GVP SUPRA CARD 2000 Pro ACCESS CARD 2000 Series II HC A-2000 Series II HC8/0 A-2000 2080 A-2000 CARD ACCESS SOFTWARE TURBO 500 (A-1000) (A-500) exp. to 8MB (exp. to 8MB) DRIVE SEAGATE \$299 \$109 \$149 \$195 \$169 \$145 \$189 \$219 \$119 \$179 \$229 \$269 DRIVE ST-157N-1 \$399 \$534 \$379 \$419 \$419 \$449 \$235 \$319 \$339 \$409 \$459 \$359 \$499 ST-1096N \$624 \$325 \$419 \$429 \$504 \$554 \$469 \$509 \$489 \$459 \$499 \$539 \$589 QUANTUM \$245 \$339 \$389 \$425 \$415 \$369 \$425 \$459 \$539 \$349 \$419 \$469 \$509 (40MR) QUANTUM (52MB,Low \$435 \$559 \$359 \$409 \$445 \$389 \$445 \$479 \$265 \$369 \$439 \$489 \$529 Profile) QUANTUM \$365 \$465 \$589 \$509 \$555 \$529 \$499 \$539 \$579 \$629 \$664 \$475 \$539 (105MB) QUANTUM \$955 \$879 \$798 \$845 \$839 \$875 \$759 \$769 \$829 \$879 \$919 (170MB) QUANTUM \$905 \$1035 \$839 \$849 \$889 \$959 \$869 \$919 \$869 \$899 \$955

More Hard Drives

QUANTUM 105MB Low Profile SYQUEST 44MB Removable w/CART..\$499

NY-1020 B

GVP 8/2 MEMORY EXPANSION

FOR A-2000 (2MB Expandable to 8MB) 2MB.....\$189 6MB.....\$349 .\$269 8MR .\$429



188

.\$2249

140,000 word dictionary w/antonyms &

95 synonyms Grammar checker

True WYSIWG Works Platinum.... \$99.95 \$39.95 On-line Platinum Scribble Platinum.....\$59

MICRO R&D



BIGFOOT Dual switching Fan Cook 150 Watt Power Supply for Fan Cooled 5 Hard or Floppy Drives

CULTS Graphic printing time by 70% \$129 PRINT BUFFER

SEAGATE ST-125N-0 (20MB) \$189 SEAGATE ST-296N.... \$285 NX-1001. \$155.95

....\$159.95

PRIN	ILM		
HEWLETT PACKA	RD		
HP DESKJET 500	\$499.95		
HPLASERJET IIP w/Toner	\$899.95		
HP PAINTJET	\$919.95		
HP LASERJET III w/Toner			
HP LASERJET IIIP w/Toner	\$1099		
CITIZEN			
GSX-140.	\$289.95		
GSX-145 (Wide Carriage)	\$395.95		

..CALL

PANA	SONIC
KXP-1180	\$159.95
KXP-1191	\$234.95
KXP-1124i	\$299.95
KXP-1124	\$234.95
KXP-1624	\$369.95
KXP-1123	\$239.95
COMM	ODORE

MPS-1270 Inkiet.....

NX-2420	\$275.95
NX-2420R	\$289.95
MONITOR SPE	CIALS
NEC MULTISYNC IIID	
NEC MULTISYNC IIIDS.	
SEIKO 1440	\$529
SEIKO 1445	\$599
SEIKO 1450	\$669
SONY 1304	9600

\$195.95

INSIDI		Internal Memory
MB	\$249	for A-1000
1.5MB	\$279	OK Exp. to 1.5MB

MEGA CHIP 2000 Allows you to have 2MB Chip \$249 RAM & 8MB Fast RAM for A-2000

MEGACHIP 2000 & Amiga 2MB Super Agnus (Less \$50 rebate for 1MB Fatter Agnus Chip)

Security System for A-2000/3000 \$129 MULTISTART II.....\$79



OAST

IT WILL CHANGE THE WAY YOU WORK WITH COMPUTERS AND VIDEO!

FOR OUR LOWEST PRICE

MANY OTHER TIME BASE CORRECTORS

GOSCH

TOASTER TUTORIAL **TAPES**

AMIGA

WORLD

PRODUCTIONS ON SALE!! (TBC) AVAILABLE

AMIGA 500 AMIGA 2500 AMIGA 3000 TM

MODELS

AMIGA 2000 AMIGA 2000HD **AMIGA 3000**

Commodore new! CDTV

AMIGA PERIPHERALS AND ACCESSORIES IN STOCK!!

OW PERMITTED



ATIONS DCTV

ALL

PRICED

SUPERGEN......\$619 SUPERGEN 2000S..\$1339 KITCHEN SYNCCALL



TRUMPCARD 500 PRO......\$239 TRUMPCARD 2000 PRO......\$179

SEE OUR HARD DRIVE

PRICING FOR GREAT

PACKAGE DEALS

TRUMPCARD 500

TRUMPCARD 2000

\$30.95

ANIMAGIC SOLUTION STATE STAND SCULPT 4D \$289.00 PRO MOTION. PRO VECTOR FONTS

KARA ANIMA FONTS. \$29.95
KARA FONTS
HEADLINES. \$43.95
HEADLINES. \$39.95
VIDEO EFFEC
VIDEO TITLE KARA ANIMA FONTS... \$29.97 TITLE PAGE \$109.00 MIDIT. KARA FONTS \$1.30.97 TITLET FRO \$35.00 MIDITS YET FOR \$10.00 MIDIT \$1.00 MASTERPIECE FONTS...\$139.95
PAGESTREAM FONTS....\$25.95
ZUMA FONTS (A.C......\$59.95
VISTA PRO...
VISTA 1.2. ZUMA FONTS (1-5) \$20.95

GRAPHIC PROGRAMS DRAWING/CAD

\$199.00 AEGIS DRAW 2000\$165.00 ART DEPARTMENT.......\$51.50 DYNA CADD. ART DEPARTMENT ... 351-00 DANNED ... \$15.00 DANN

\$96.00 \$32.00 \$92.90 AUDITION \$62.95 \$95.00 BARS AND PIPES \$115.00 ..\$174.00 SCULPT3D XL

DR. Te KCS 3.0......\$159.95 DR. Te KCS LEVEL II.....\$215.00 \$108.00 DR. T9 NGS 552.558.00 MASTER TRAX PRO \$249.00 NGDIX \$199.00 MIDIX \$179.95 50.00 MIDIQUEST.... SYNTHIA PRO....

PRODUCTIVITY SOFTWARE

COMMUNICATIONS MUSIC SOFTWARE
AUDIOMASTERIII 59.9.0
AUDITION 58295
BARS AND PIPES PRO. 20500
SUPERBASE W

PROFESSIONAL 2
SUPERBASE W

PROFESSIONAL 2
SUPERBASE W DELUXE MUSIC CONST....\$81.95 VIP PRO. \$179.95 ACBASIC...... \$96.00 A/CFORTRAN. \$189.00 AM/GAVISION \$49.50 DEV. V5.0A AZTEC C PRO BLITZ BASIC \$235.00

TIGER CUB......\$58.95 TRAX MIDISTUDIO.....\$56.00 UTILITY SOFTWARE AMIALIGNMENT KIT \$29.95 CANDO INTROPAK..... \$19.95 DOCTOR AMI.... \$84.95 DOS TO DOS..... \$24.95 DUDE \$200 DOMISDAY ... \$22.00 DOMISDAY ... \$45.00 BUDDKAN ... \$174.00 EXPRESS COPY VER. 1.5. \$22.00 CALIFORNIA ... \$189.00 FLASHBACK ... \$44.00 CHALLENGE

AMIGA SOFTWARE QUARTERB QUARTERB RAW COPY. \$37.95 \$169.00 \$57.00 SCANNERY... SUPERBACK VOREK ONE. X-COPY PRO .\$84.95 GAMES & ...\$199.00 ENTERTAINMENT 686 ATTACK SUB......\$31.95 ACK SUB. \$31.95

KK KILLER. \$30.95

D DESTINY. \$35.95

IOPHOBIA. \$27.95

FEVER. \$28.00

\$38.95

TRAINER 20. \$26.95

GEDDON. \$27.00

ME. \$29.95

THE LITTLE \$12.95 A-10 TANK KILLER. PROGRAMMING LANGUAGES \$125.00 AMOUR-GEDDON BACK TO THE FUTURE II. \$28.95 AZTEC COMPILER BANE OF TH\$105.00 BATTLE CHESS.
BATTLE HAWKS.
BLACK GOLD.
BLITZKREIG. LATTICE C 5.1. LATTICE C++... \$189.00 \$99.00\$29.95\$23.00 BLOCKOUT BLOOD MONEY BRAIN BLASTER

DAS BOOT...... DICK TRACY..... DRAGON STRIKE.....
DRAGON WARS......
DRAKKHEN....
DUCKS TALE QUEST. BASEBALL... ELVIRA... F-16 COMBAT PILOT \$13.95
F-19 STEALTH FIGHTER \$35.95
F-29 RETALLATOR \$31.95
FALCON \$29.95
FALCON \$29.95
FEMME FATALE \$20.96
FIRE BRIGADE \$23.95 \$25.50 \$27.50

FLIGHT SIMULATOR II

DARK CENTURY....

SPECIALS
FULL METAL PLANET 500.00 MEAN STREETS
FUTURE WARS. 31:00 MEGATATAVE LET.
CENTERFOLD SOURCES 1923.05 GIOLORISM. 42:50 MOONSHINE RACERS.
CHICKEN STRIKES BACK. 12:30 GIORNOM WATA TADK. 13:50 MIROS
CHICKMATTE 15:30 GIUNNOM WATA TADK. 13:50 MIROS
CHICKMATE 19:30 GIUNNOM WATA TADK. 13:50 MIROS
COUGAN TORCE. 13:50 MIROS
COUGAN TORCE. 13:50 MIROS
CHICKMATE 19:30 MIROS
COUGAN TORCE. 13:50 MIROS
CHICKMATE 19:30 MIROS
CHICKMATE 1 HEART OF THE DRAGON. \$29.50 HEROES QUEST......\$34.00 HEROES GUESTI \$34.00

HEROES GUESTI \$36.00

HOVER FORCE \$30.00

HUNT I FRED OCTOBER \$19.95

IMMORTAL \$19.5

NOY 500 \$31.95

INFESTATION \$23.95 \$29.00 INTERCEPTOR. \$33.95

\$32.95 ...\$31.95 ..\$13.95 \$30.95

LEISURE SUIT LIARMT III. 33-393 SILENT SERVICE
LEMMING. 129.30 SILENT SERVICE
LORD OF THE 15 SKIO OF DE
RISING SUN. 331.95 SPACE GUEST.
MAGIC JBASKETBALL. \$31.95 SPACE GUEST.
MAGIC JBASKETBALL. \$31.95 SPACE GUEST.
MANIAC MANISON. \$17.50 SPACE GUEST. \$30.95 MARRIE MADNESS.

..\$36.00 ...\$32.00 .\$31.95 N.\$29.50 OBITUS \$33.00 \$34.00 OPERATION STEALTH \$38.95 \$36.00 OPERATION WOLF \$14.50

\$31.95

KINGS QUEST IV ... 383 55 SEX VIZENS from \$PAGE \$23.25 WARN IN MIDDLE EAR KINSTAL. 28.455 SECRET 50 MONKEY ISLAND ... 44.55 WIERD OR-ZAUS. LESURE BUTLARRY II. 3835 SHADOW of he BEAT. 12.35 WHERE IN ELIGIBLE BUTLARRY III. 3835 SHADOW of he BEAT. 12.35 WHERE IN ELIGIBLE BUTLARRY III. 3835 SHADOW of he BEAT. 12.35 WHERE IN ELIGIBLE LESURE BUTLARRY III. 3835 SHADOW of he BEAT. 13.45 S CARREN LEBURG STAND WHERE IN WARD LEBURG STAND S

\$36.95 WOLF PACK \$33.00 \$27.50 WRATH OF THE DEMON \$29.95 ...\$13.95 SPEEDBALL

STAR CONTROL
STAR FLIGHT.... STRIKE ACES \$30.00 STRIP POKER II... SUPER CARS..... \$14.95 SUPREMACY......SWORD OF ARAGON.... THEIR FINEST HOUR. \$39.95

\$30.95 ..\$30.95 .\$30.95

.\$25.50

WINGS OF FURY...

GOLD PROFESSIONAL PAGE 2.0..\$169

ADVANTAGE.....\$109 PAGESETTER II.....\$69 TRANSWRITE....\$39 PRO DRAW 2.0....\$119\$119 COMIC SETTER.....\$41



ORIZONS

"THE TOOL AMIGA USERS ARE

USING FOR SCRIPTWRITING"

DESIGNWORKS

"NEW STRUCTURE \$89

PROSCRIPT PROFONTS #1.....\$22.50 PROFONTS #2..... \$22 50 QUICKWRITE \$44.95

submitting P.O.s. Non-certified checks must wait 2-4 weeks for number or returns will not be accepted. Please add 5% shipping handling, minimum \$15. (Over \$1200-8%, Over \$3000-8%). All APO/FPO orders at card theft. DCA #800233. Amiga is a registered trademark of Commodore Amiga. surcharge. Second day & Next day Air available at extra cost. We check for c

From p. 80.

up to 154 buttons. Overscan and PAL screens have room for even more.

Conversely, the WMS button array can be as small as a single active button. You can easily iconify WMS and get that out of the way, too. WMS manages layers of button arrays, as well. You can reach buttons located on these elusive layers via the program's scroll arrows or by identifying the page in question. You can also assign buttons specifically for changing layers.

WMS MEETS HARD DISK

The install program of WMS makes its transition to a hard drive a simple job. When you first boot WMS, you see a column of buttons containing its nine built-in applications, including the install program and a simple, line-based text editor that's suitable for creating and editing AmigaDOS command files (such as the Startup-Sequence).

Telemate is a basic phone-and-address file supporting separate directories for business and personal entries. Calendar-Reminder is an appointment book and calendar. The Decisive Environment Unit is a collection of reference tables including AmigaDOS error-code definitions, Shell-command descriptions, and an ASCII chart. The SqueezeBox Shell provides an easy way to access four of the most popular Amiga file-compression utilities; ARC, LHarc, Warp, and Zoo (utilities not included).

WMS's File Manager lets you view both text and IFF-image files, listen to sound files, and execute programs. WMS automatically identifies file types and takes the appropriate action. Like the text editor, this program can handle only text files with fewer than 256 characters on a single line. The final two applications are AnyTime!, which displays the current date, time, and memory in eight formats (numeric and text) and Time-Set!, an easy way to set your system's clock.

A BUTTON EDITOR AT HEART

The Button Editor—the heart of WMS—lets you set the default screen configuration and select programs for execution via screen buttons. You may select any number of rows and columns—up to the limits of the screen size—from a pull-down menu option. A floating-window option lets you position the WMS button array to any part of the screen.

WMS not only lets you create and

assign buttons for an application, but also permits directory (panel buttons) and text-file loader buttons. Panel buttons allow you to set up levels of specific types, such as buttons for video, business, or games. You can also assign buttons to any text file or script for automatic loading.

Not every program is amenable to execution via WMS. For example, I was unable to get DOS-2-DOS (Central Coast Software) to operate under WMS. Other programs may require special handling to get them to run. The AmigaDOS DIR command crashed my system when I tried to install it in WMS. Although a call to TTR's technical support explained how to get the DIR command to run, WMS would not display the output long enough to be of any value.

Since WMS entries are strings of AmigaDOS commands, familiarity with AmigaDOS would be helpful in getting recalcitrant programs to run. Do not look to the manual for help, because it does not provide technical information regarding the program's operation. I do, however, have to rate TTR's technical support as either excellent or insane—they are the first software developer I have come across that answers phones on a Saturday night!

Finally, when considering a purchase, you should consider the extra 180K of RAM that WMS requires. Its built-in applications, however, do not use extra RAM, because you load from disk as needed.

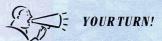
Workbench Management System is not an essential program, nor does it do anything really new. It does, however, make it easy to access programs without icons and to execute script files. Once you get used to having WMS around the Workbench, you may find yourself reluctant to give it up.

FLASHBACK

A little insurance policy.

By Greg Morris

THE STORY IS all too familiar: You are right in the middle of a critical report when, without warning, your hard disk crashes, taking all of your critical data with it. Have you prepared for such an event? You may postpone hard-disk backups because you think it won't happen to you. Maybe it won't, but if it did, you'd be very glad to have your important data



I have a rather odd system and had problems running Quarterback. After downloading the FlashBack demo—which worked perfectly—I bought it.

John Leach Garfield, Arkansas

all backed up and safely stored.

This is where FlashBack (\$79), a new hard-disk backup utility from Advanced Storage Systems, comes into play. FlashBack's eye-appealing screens easily guide you through the steps necessary to perform back-up operations. You may select your options using either the mouse or corresponding keyboard equivalents.

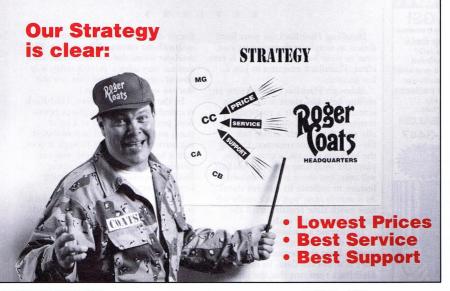
PICK AND CHOOSE

FlashBack offers two main types of backups: file or image. While an image backup reads your source disk byte by byte and captures the entire contents (including any file fragments) at high speed, a file backup is much more flexible, enabling you to copy files on a case-by-case basis. Because an image backup requires a high-capacity destination device, it eliminates floppy disks from use. Even though many people prefer file backups, FlashBack's provision of both options is a bonus for those having the storage capacity to handle image backup.

With file backups, FlashBack graphically presents a list of directories graphically on the left side of the screen, with the files contained in a selected directory on the right. Simply by clicking on a file or directory name, you can enable or disable those files for backup. In addition, Flash-Back highlights selected files on

Besides graphical file selection, you can specify certain patterns or wildcards within filenames. For instance, you might want to back up only those files that start with "Pic" or only those that end with ".bak." Other selection criteria include files by date and files modified only since the last backup. If you own back-up devices besides floppy drives, such as a tape drive, FlashBack's unattended back-up capability allows you to automate the entire process. Afterward, FlashBack generates a complete report of the files and options involved, which is very handy should restoring become necessary. >

OPERATION AMIGASTORM



3.5 HD Floppy Drive	189	M M R 33 MHz (500
DataLink Express 2400	157	DIGITAL CREATI
DL 2000 (Int 2400		DC TV (24 Bit Displ
w/MNP5 & Fax)	184	Supergen 2000 Inter
DL 2000 (Int 2400 w/MNP5)	149	ELECTRONIC AR
Heavy Duty Power Supply (500)	89	Deluxe Paint III
ASDG		EXPANSION SYS
Art Department Professional	129	2000 DataFlyer w/S
Dual Serial Board (2000)	229	500 BaseBoard
AVATAR		w/Clock @ 1MB
Heart of the Dragon	20	500 DataFlyer w/SC
BASIC CABLE		+ Chassis
Most Cables	11	GREAT VALLEY F
CALIFORNIA ACCESS		150 MB Tape Backu
Bodega Bay		(2000 in bay)
(Turns 500 into 2000)	319	3050 Accelerator
CA-880 External 3.5" Drive	104	(MHz/4 MB)
CENTRAL COAST		
DOS-DOS (Read & Write		
IBM Disks!)	31	163///
Mac-2-DOS	84	
QuarterBack (Backup Utility)	39	
QuarterBack Tools	49	OPEDATION
CHINNON		OPERATION A
3.5" Internal 3.5" Drive (2000)	85	Strate
3.5" Internal 3.5" Drive (3000)	87	To beat the be
CSA		price in this r
ECONO M M R, 25 MHz	499	Ragin! Roger w

APPLIED ENGINEERING

M M R 33 MHz (500/2000)	839
DIGITAL CREATIONS	
DC TV (24 Bit Display)	389
Supergen 2000 Internal	1339
ELECTRONIC ART	
Deluxe Paint III	93
EXPANSION SYSTEMS	
2000 DataFlyer w/SCSI	89
500 BaseBoard	
w/Clock @ 1MB	157
500 DataFlyer w/SCSI	
+ Chassis	155
GREAT VALLEY PRODUCT	rs
150 MB Tape Backup	
(2000 in bay)	635
3050 Accelerator	
(MHz/4 MB)	2349
0.0000 1.000 1.000 1.000	
TOPERATION AMIGAST	ORM
OPERATION AMIGASTO	ORM
Strategy:	
Strategy: To beat the best advert	tised
Strategy:	tised

M M R 25 MHz (500/2000)

689

600 MB Read Write		
Optical Drive	3569	
Combo (22 MHz/1 MB)		
+ NO HD	899	
Combo (33 MHz/4 MB)		
+ NO HD	1599	
HC Series II + RAM		
w/80 MB HD	659	
HC Series II + RAM		
w/No HD	199	
HC Series II No HD	155	
HC Series II w/80 MB HD	619	
Impact 500 Series II w/52		
MB HD	639	
GOLD DISK		
Home Office Advantage	109	
Outline Fonts-35 CG		
Hi Res Fonts	124	
Professional Draw 2.0	109	
Professional Page 2.0	217	
GOLDEN IMAGE		
512 RAM Card w/Clock & Cal	49	
Golden Image Hand Scanner	269	
Opto-Mechanical Mouse	35	
ICD		
AdRAM 2080 8/2MB	225	

AdRAM 540 w/Clock @ 1MB

AdSCSI 2080 8/2MB w/SCSI

IMPULSE	
Imagine v1.1	195
INNOVISION	
Broadcast Titler 2	219
IVS	
Trumpcard Professional (2000)	209
Trumpcard Professional (500)	259
MAGNAVOX	
RGB Color Monitor	294
MEGA MICRO	
1 MB DRAM Chips, 100 ns	
(set of 8)	64
1 MB SIMMs	69
256K x 4 DRAM Chips (set of 2)	
MICROWAY	10
Flicker Fixer (2000)	239
NEWTEK (2000)	200
CS-1 Copy Stand & Lights	55
DigiView Gold 4.0	119
Panasonic 1410 Camera-	110
Variable Lens	209
Video Toaster (2000)	1399
OXXI	1000
Atalk 3 (Communications)	59
Video Titler	91
PASSPORT	01
Mastertracks Pro	219
MIDI Transport	309
PRECISION SOFTWARE	000
Superbase Professiona v3.0	199
RICKETTS INC.	100
XT 1000 Amiga 2000 Adaptor	8
XT 1000	
(IBM KeyBds on Amiga)	35
SAFESKIN	
2000 or 3000 Keyboard Skin	16
SOFT LOGIC	
Pagestream 2.1	167
SUNRIZE	
Color Splitter	109
SUPRA CORP.	
1000 SCSI Interface w/Clock	179
2000 SupraDrive 40 MB	399
2000 SupraRAM 2 MB	209
2000 WordSync SCSI Interface	109
2400 Baud External Modem	99
2400 Plus (Ext Modem w/MNP	-
2400zi Internal Modem (A2000)	
500XP 105 MB w/512K	799
500XP 52 MB w/512K	549
US ROBOTICS	010
Courier 9600E Modem	619
VORTEX	010
ATonce	279
WORDPERFECT	
WordPerfect v4.1	139

AdSpeed - All Amigas 👺 219 Ragin' Roger will send you a ECONO M M R, 35 MHz 609 1,000's of Product Available— call for complete Catalog check for \$5 U.S.

HOW TO ORDER: Orders only: 1-800-438-2883 FAX: 1-619-274-2440 15% (\$15/min. restocking fee on refunded items only)

Price quotes & technical support: 1-619-274-1253



8am-5pm PST Monday-Friday Committed to Value Since 1985



P.O. Box 171466 San Diego, CA 92197

OUR FINE PRINT: *Certain limitations apply to \$5 offer: 1. Advertised price must be published in this magazine. 2. We reserve the right to question misprints.
3. Limited to items we carry & stock on hand, excluding games. 4. Management reserves the right to make final decision.

We accept the following methods of payment:

• School Purchase Order • VISA & MasterCard · Bank Wires · Certified Checks · Money Orders · NO C.O.Ds • Sorry, No Software Refunds

Not responsible for product compatibility

157 289

• Sorry, no shipping, handling or insurance refunds
• FOB San Diego • We really appreciate your business!

Video Clipse™**5, GSI**

 20 BIG super-clean bitmap fonts Hi-Res - from 100 to 160 points tall!!

AmigaTM & Toaster formats included

 3 clip-art fonts (key assigned graphics) special occasion/commercial/multi-use

 IFF backgrounds & brush patterns Static: marble, wood, granite, sky ... Anims: starfield, countdown, globe... SEE YOUR LOCAL DEALER

407/626-3447 Graphically Speaking, Inc. 3

2574 PGA Blvd., Suite 107 Palm Beach Gardens, FL 33410 THE BUDDY SYSTEM™

- · Learn by Using at YOUR pace!
- Hypermedia interface ("except DPaint III)
- Realtime Visual Demonstrations
 Speech Narration & Captioning
- · Insightful, Enjoyable & Effective

Flattens The Learning Curves For:

DPaint III™, PageStream™, Imagine™, AmigaDOS™ 2.0... sold separately by their respective companies

95 Suggested ea. Retail

At Your Local Amiga™ Dealer HelpDisk, Inc. (407) 694-1756 6671 W. Indiantown Rd. Jupiter, FL 33458

Circle 95 on Reader Service card.

Ampex Systems, Inc. (Not affiliated with Ampex Corp.) 5344 JIMMY CARTER BLVD. NORCROSS, GA 30093

(k commodore AMIGA.

1 mg x 4-80 (Static for A3000).....\$32.95

MEMORY CHIP 256K x 4 DIPP

1 mg x 4-70 (Static for A3000)	\$39.95
NEW FATTER AGNUS	. \$109.95
Amiga Mouse	\$49.95
Mouse (lifetime warranty from	
manufacturer)	\$69.95
Keyboard for A500	\$110.00
Keyboard for A1000	\$130.00
Keyboard for A2000	\$120.00
Keyboard Adapter for CDTV	\$19.95
Power Supply A500	\$109.95
Power Supply A2000	
Power Supply A3000	\$199.95
SUPRA	

2 MG Expandable to 8 MG A2000. \$210.00 1/2 MG w/clock for A500.....\$69.00 50 MG Hardcard for A2000\$449.00 105 MG Hard Card for A2000\$699.00 GVP A3001/33 MHZ w/4 MG\$1650.00 Amiga Vision.....

(Orders Only) (800) 962-4489 Fax (404) 263-7852 (Information & Prices) (404) 263-9190

Installing FlashBack on your hard disk is as simple as dragging its icon over to your hard disk. Once it is resident, FlashBack executes in just a few seconds.

Although FlashBack comes with an on-line help file, there is no way to search through it for a particular command. Rather, you have to visually scan through the entire help file-a slight inconvenience. During the back-up process, a graphic displays the total time a specific backup will take, but there is no count-down feature to indicate its current status. As it stands now, you can't really tell how much time remains until the backup procedure ends.

To increase a backup's level of reliability, the Verify option reads information from the destination device after it writes the data. In this way, FlashBack confirms that the information was indeed written correctly. While this is a good feature to have, you sacrifice speed in exchange for increased reliability. During a restore operation, however, there is no comparable Verify option.

With the version I tested, 2.05, I succeeded in locking myself out of the program and crashing my Amiga. By clicking two times in rapid succession on one of the requester gadgets, I got two requesters—one displayed on top of the other. When I tried to cancel out the top one, I was left in a "dead" requester, with no way to exit. Repeated gadget pressing at this point led to a complete crash of my A2000.

After the crash, I called FlashBack's support line and described the problem to a very helpful representative. He promptly called me back and said that I had indeed found a bug. He also explained that they would correct it immediately and send me the updated version.

One important consideration when planning a software purchase is how well the manufacturer supports the product after your purchase. I received a very positive impression of how Advanced Storage Systems treats its customers. Even though this particular problem is frustrating, you can avoid it by making sure you don't accidentally double click on a gadget.

DEPENDABLE AS A BUICK

When FlashBack has a problem writing to a floppy disk during a backup, it appears not to retry the operation before displaying an error message. Several times during a backup when FlashBack detected a read/write error. just removed and reinserted the

floppy disk, and the operation continued without errors. (Editor's Note: The developer claims that the reason FlashBack does not retry when a problem occurs is to prevent copying important data to a disk that's in marginal condition.)

In the performance area, FlashBack responds to selections without hesitation, performs backups at a good pace, and behaves well in a multitasking environment. Even though it does lack a back-to-front gadget, you can perform a similar-though not as flexible—operation with an Amiga keyboard-equivalent command.

Despite a few deficiencies, FlashBack is a valuable program that can provide you with peace of mind and a means to recover corrupt data. By following the easy-to-use screens, you can back up your data easily, reliably, and within a reasonable amount of time.

VIDEO TOASTER

Pay no attention to the man behind the curtain.

By Joel Tessler

Editor's note: NewTek's Video Toaster is certainly one of the most discussed products ever to hit the Amiga market. Because AmigaWorld has run a few stories on the subject-most recently in the October 1990 issue (see 'Amiga Video: Done to a "T," p. 20)—the following review is limited to the ways in which the Toaster fits into professional production and editing environments.

REVOLUTIONS HAPPEN overnight. Evolution, however, is a slow and arduous process. While NewTek's alleged decision to modify the Video Toaster's original design may account for the board's slow trek to marketapproximately three years from the time it was announced-it definitely places its progress in the evolutionary category. The question on the table now is: Was it worth the wait?

The key to the Video Toaster's potential lies in understanding not only its hardware and software but also its cost (\$1595) in relation to performance. While its video compression cannot stand up to high-end DVE systems costing up to \$12,000 in some cases, the Toaster provides a viable substitute.

Another consideration is that the costly stand-alone boxes do not include the arsenal of software modules that live in the Toaster. In conjuction >



The Software Shop, Inc. Orders Only Call 1-800-752-0050

"Give us the chance to meet or beat any advertised price."

WE ACCEPT MASTERCARD & VISA.

AMIGA 2000	Quantum	Quantum	Quantum	Quantum	Syquest	AMIGA 2000	Men	Memory Expansion		
HDrives	52LPS	105LPS	105MEG.	205MEG.	W/Cart	ans of the Walter State	2MG.	4MG.	6MG.	8MG
Harddrive Prices	\$289	\$499	\$399	\$809	\$569	8UP A2000	\$219	\$299	\$379	\$465
GVPA2000-HC/0SRS II	\$429	\$629	\$559	\$959	\$739	ADD SCSI 2080	\$269	\$359	\$449	\$539
GVPA2000HC8/0SRSII	\$479	\$679	\$609	\$999	\$783	ADRAM A2080	\$199	\$289	\$379	\$459
Hardframe 2000	\$439	\$629	\$559	\$959	\$729	GVP A2000-HC8SRS II	\$299	\$389	\$489	\$579
Supra Wordsync	\$389	\$599	\$499	\$929	\$682	RAMWORKS 2000	\$209	\$299	\$369	\$449
AddSCSI 2080-/8+0	\$449	\$669	\$569	\$989	\$748	SUPRARAM A2000	\$209	\$289	\$369	\$449
A500 SCSI HDrives	Q52LPS	Q105LPS	A500 IDE Internal Hardrives		Amiga 500 Memory	1MG.	2MG.	3MG.	4MG	
GVPA500HD8/0 SRSII	\$669	\$859	Teac40mg	Q52LPSA	Q105LPSA	Base Board	\$159	\$205	\$249	\$299
Supra-500XP-512K	\$579	\$799	\$329	\$399	\$599	Adram 540	\$159	\$205	\$249	\$299

)
)
5
,
)
)
)
3
)
)
5
2
7
•



Save on your Amiga Software & Hardware

CAD Home builder choice\$53 Home Buildr library\$32 Home buildrs Sculpt\$79 Home builder cad\$129 Intro Cad Plus\$99\$269 Ultra Design X-CaddesignerPro.\$215 X-CadDesignerII\$74 Communication

Baud bandits telecom.\$33 BBS pc\$96 Online Platinum\$49 Skyline BBS\$99 Database Desktop budget\$46 Home Front\$59 Organize\$49 Project Master\$129

Atalk III\$65

Superbase 4
DeskTop WordProc.
Becker text\$92
City Desk 2.0\$95
Electronic Thesaurus\$34
Excellence! 2.0\$115
Gold spell II\$30
Gold Disk Office\$189
Page setter II\$89
Page stream 2.0\$199
Page Stream fonts 1-15\$29
Pen Pal\$102
Professional Page 2.0\$225
Professional Draw\$125
Pro-page template\$42
Prowrite v3.01\$105
Structured Clip Art\$39
Super Clips\$22
Wordperfect\$159
Wplibrary\$79

	Aesop's fables \$32
	All about America\$35
ş	Animal kingdom\$32
ě	Decimal dungeon \$32
ě	Designasaurus\$32
946	Fraction action\$32
	Kinderama \$32
	Math wizard\$35
	Mavis beacon typing\$33
	Read-a-rama\$32
	Read & rhyme \$32
	Tales from Arabia\$32
I	WhereinEurpe.C.Sdiego \$35
	WhereintheU.S \$35
•	WhereinWorldC.S\$32
86188	Wordmaster \$32
	World Tour Canada\$30
	Worldtour Mid East \$29
	Fonts

Education

cg fonts	\$129
Inter font	\$76
Kara fonts color	\$50
Kara fonts Headline 2	\$48
Kara fonts subheads	\$48
Kara Anim font 1	\$35
Kara Anim Font 2	\$35
Kara Star Field Font	\$35
Type Fonts	\$39



	3d options\$40
	3D Professional \$346
	Amiga Vision\$99
	Animagic\$95
	Animate 3-D\$99
	Animation Studio\$111
H	Animotion\$65
	Animation Titler\$59
Š	Art Dept. Pro \$159
Ş	Broadcast Titler V.2.0\$229
	Caligari\$159
	Can do\$99
	CanDo Pro Pack1\$29
	Deluxe Paint III\$102
	Deluxe print II\$59
	Deluxe video III\$106
	Design 3-D\$67
	Digi-Paint 3\$69

Digi View Gold 4.0	\$131
Imagine	
Invision	
Modeler 3d	\$64
Movie clips	
Movie setter	
Page flipper fx	
Pagerender 3-D	
Pixmate	
Pro Video Post	
Scene Generator	
Spectrocolor	
Title Page	
Tv-show 2.0	
The Director 2.0	
Tv Text Prof	
Videoeffects3d	
Videoscape3-d	
Videotitler 3d	
Vista Pro	
Zoetrope	\$91
Zoetrope	\$91



Call for all Amiga line of computers

Hardware

A2320 Video Enh	\$249
AdIDE Controller	\$119
AdSpeed	\$249
Ae-datalink 2000 W/fax	
Ae-datalink Exprs. W/fax	
AE External Drive	
AE 3.5External Dr.HD	
Ae-power Supply	
Air Drive External	
Amax II Emulator	
A/B/C/D Switchbox	
Copy Stand	
Ergo Joystick	
Golden Image Mouse	
Golden Image Optical	
Modem cable 2000/500	
Monitor Stand	
Printer cable 2000/500	
Baud Bandit level 5	
Color Splitter	
Ece Midi 1000	
Ece Mid 1000	

reflect sould v.s.o
Scanlock \$789
Sharp JX 100 Scanner \$789
Super Gen \$695
Supergen 2000S Call
Supra 2400bd internal \$149
Supra modem 2400bd \$119
USRobotics9600bd.HST \$669
Video Toaster
Languages Utilities
Tunganger C
A/C basic \$129
A/C fortran \$195
Arexx\$33
Assem pro \$65
Benchmark c lib \$62
Bnchmark SrcLevDebug \$62
Benchmark iff library \$62
Benchmark C library \$62
Benchmark modula 2 \$128
Benchmark simplified \$62
Cross Dos 4.0 \$29
Cygnused Professional \$65
Data Tax \$52
Disk master 1.4 \$33
Disk mechanic \$59
Dos 2 dos \$35
Lattice Dev.System 5.1 \$209
Mac 2 Dos \$99
Power windows v2.5 \$58
Project D 2.0 \$39
Quarterback 4.1 \$45
QuarterBack tools \$55

Ece Midi 500/2000 \$52 Flicker fixer \$299 Future snd. A500/A2000 \$92 Internal 3.5drive A2000 \$89 Migraph Scanner \$349 Mini Gen \$210 Perfect sound V.3.0 \$75

Wrk Bench Mgmnt.2.0 \$31 Monitors NEC 3D multisync \$699 Sieko Cm1440 Monitor \$599 Zenith14'FlatCRT \$625 Printers \$210 Citizen 200GX Citzen GSX140 Color \$399

Star nx rainbow \$225 Sound & Music



4-op deluxe	\$112
Audio Master 3	\$65
Audio master II	

Back songbook	\$27
Bars & Pipes	\$179
Copyist II 3.0	\$179
D-50	\$99
Deluxe music	\$69
Dr T's Keyboard	\$160
Dr T's Midi Rec.Studio	
Dynamic studio	\$129
Hyper Chord	
Kcs Level II	
Matrix 6	
Mt-32	
Music-X	\$205
Promidi studio	\$129
Sonix	
Tiger Cub	\$62
SpreadSheet	

Terms & Policy: TO ORDER BY FAX CALL: 1-508-799-9354 FOR PRODUCTS NOT LISTED CALL:

.\$97

Advantage

Super plan

VIPProfessional

PLEASE SEND ALL CORRE-SPONDENCE TO: THE SOFTWARE SHOP, INC. 22 FRONT ST. P.O. BOX 22 WORCESTER, MA 01614

1-508-756-6452

PRICES TERMS, AVAILABILITY ARE SUBJECT TO CHANGE WITHOUT NOTICE.

POLICIES: 1-We accept Vis and Mastercard 2-Minimum Shipping \$6.00 3-COD charges \$5.50 4-Hardware Shipping 5%. 6-International Shipping 15% 7-APO & FPO 10% 8-2nd. day air Available

10-Returns are subject to 15% restocking fee. 11-Product must have RMA# to be returned.

9-Next day air Available

Circle 50 on Reader Service card.

CALL FOR ENTERTAINMENT SOFTWARE.

with the switching capabilities, these modular programs—Chroma F/X, Toaster Character, LightWave 3D, and ToasterPaint—are where the real power lies.

NUTS AND BOLTS

When you open the box, you will find—in addition to the board itself—one rather large manual and no less than eight disks. You also get labels to help you identify your video inputs and outputs, as well as your program, preview, and interface monitors.

To install the board, you take off your Amiga's cover and very carefully remove the power-supply assembly. Insert the board into the Amiga's video slot and then gently lower the power supply back into place. Fasten the board to the back of the video slot with the two screws provided.

The software installation is straightforward and automatic. Following the prompts, simply feed the eight disks into your floppy drive until the installation is complete.

The next question is, what can you

do with the Toaster and what else are you going to need? Here are a few sample systems and their capabilities:

Profile #1: The simplest system consists of a single camera, both an RGB and composite monitor, the Video Toaster, and an editing VCR. Take note that this system does not require the use of a costly Time Base Corrector (TBC). Many of the Toaster features are still available, although you are limited in what you can accomplish.

One of the most basic uses for a system like this could be digitizing company logos with the Video Toaster's 24-bit framegrabbing capabilites. You could then manipulate these frames with the Toaster's various digital video effects (DVE) and "fly" them over backgrounds you can create with ToasterPaint. Going one step further, you could use LightWave 3D and texture map these logos on simple 3-D objects in 24-bit, with resolutions up to 1540 × 960.

With the simple system described above, you can also feed the live camera signal into Chroma FX for realtime processing. Then, you could overlay characters from the built-in character generator (CG), or overlay videographics with the Toaster's T-Paint framestores. Last, but not least, you can use many of the DVEs in real time. If you wish, you can record all of this onto tape and later edit it at a moderately priced editing suite.

Profile #2: With a bit more extensive setup consisting of a Video Toaster, a TBC, two VCRs (one Source and one Editor), an edit controller, a camcorder, and four video monitors (one Source, one Preview, one Program and one RGB), you can do real-time framegrabbing and Chroma FX processing, or apply DVEs to incoming videotape signals from the source machine. You can edit all this directly onto the recording machine. Keep in mind that without the addition of the TBC, the Toaster will not tolerate videotape signals.

If you already have a small editing system, a TBC and a Video Toaster are very powerful additions to your ▶

List of Advertisers

	or radical diocito
98	Aamiga Warehouse, 101 Amazing Computers Southeast, 101
97	
2	American Liquid Light, 67
	AmigaWorld Expo, 92-93
96	Ampex Systems, Inc., 86
84	Amy Today, 102
4	ASDG, 20-21
*	AmigaWorld
	Catalog, 70–73
	Tech Journal, 49
5	Black Belt Systems, 41
6	Black Belt Systems, 79
6 7	Briwall, 76–77
8	Coast to Coast Technologies, 47
9	Commodore, 89
10	Computability, 68-69
12	Computer Basics, 96
11	Computer Basics, 97
13	Creative Computers, 57-61
14	DevWare, Inc., 94-95
15	Digital Creations, 27
16	Digital Creations, 29
17	Dr. T's Music Software, 65
100	Fairbrother & Soepermann, 102
13	Go Amigo, 63
19	Gold Disk, Inc., 19
20	Grapevine Group, Inc., The, 75
21, 22	Great Valley Products, Inc., 4
23, 24	Great Valley Products, Inc., 5
	Great Valley Products, Inc., 5
25, 26 27, 28	Great Valley Products, Inc., 7
29, 30	
95	Help Disk, Inc., 86
31	ICD, Inc., 45

32 33 34 93 94 99 35	Kara Computer Graphics, 55 Lake Forest Logic, 18 Manta, 91 Memory World, 46 Memory World, 101 Micro R&D, 101 Montgomery Grant, 81–83
92	Moonlighter Software, 54
91	Mr. Hardware, 101
36	New Horizons Software, 9
53	NewTek, Inc., 1
38	NewTek, Inc., CII
37	NewTek, Inc., CIV
1 39	Power Computing, 53 Precision Inc., 39
40	ReadySoft, Inc., 2
41	Redmond Cable Corp., 54
42	RGB Computer & Video, 16
43	Roger Coats, 85
44	Safe Harbor, 98
45	Sideline Software, 100
90	SMC Software Publishers, 102
46	SoftLogik Corp., 19
89	Software Hut. 101
88	Software Hut, 102
47	Software Support Int'l, 99
48	SoftWood, Inc., 35
49	Spectrum Holobyte, 51
*	Supra Corp., 17
50	The Software Shop, 87
87	TriMedia Productions, 101
51	Utilities Unlimited, 99
86	Visionsoft, 102
52	Vortex Computersysteme GmbH,

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

* This advertiser prefers to be contacted directly

Subscription problems or address changes: Call 1-800-525-0643 (in CO, 1-303-447-9330) or write to AmigaWorld, Subscription Dept., PO Box 58804, Boulder, CO 80322-8804. Problems with advertisers: Send a description of the problem and your current address to: AmigaWorld, 80 Elm St., Peterborough, NH 03458, ATTN.: Margot L. Swanson, Customer Service Representative.

AW Shucks!

CIII

Item: In the May issue, Mitch Wells' article "Way Over the Rainbow" (p. 35) suffered from two seriously misleading statements introduced through faulty editorial fact-checking communication with NewTek, the manufacturer of the Video Toaster. First, the Toaster does not accept S-Video signals as input. S-Video output, however, can be used as a source with the Toaster after having been converted to a composite signal.

Second, the Toaster does *not*, as stated, allow real-time painting; instead, it works in the Amiga's HAM display mode. Internally, Toaster Paint images are 24-bit data.

We apologize for expressing these facts incorrectly.

FY

If you have any questions or concerns about advertisers in AmigaWorld, please contact: Margot L. Swanson, Customer Service Representative, AmigaWorld Magazine, 80 Elm Street, Peterborough, NH 03458. As a service to its readers, AmigaWorld will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Through our customer service representative, AmigaWorld assists readers with problems they may have with advertisers. However, AmigaWorld does not assume any liability for advertiser's claims. Readers are advised that C Ltd. and Ingenuity, Inc. are out of business. You are also advised to contact Amiga-World before dealing with these companies: Micro Computer Services; Computer Mart.

The Amiga Power Up Program. The Most Lopsided Deal Since We Bought Manhattan For \$24.

If You Own A Commodore Computer,, It's Worth Up To \$1,500*
Toward An Amiga 3000.

The Amiga Power Up™ Program rewards Commodore or Amiga owners with up to \$1,500 to trade up to a powerful Amiga 3000 computer. Without trading in your current Amiga or Commodore CPU.

If you have a Commodore VIC 20 $^{\circ}$, 64 $^{\circ}$, 128 $^{\circ}$ or Amiga 500, 1000 or 2000 series, save up to:

\$1,500 on the Amiga 3000-25/100 \$1,250 on the Amiga 3000-25/50 \$1,150 on the Amiga 3000-16/50

If you own a Commodore VIC 20, 64, 128, or an Amiga 500, 1000 or 2000 series, write the serial number on the cover of the original owner's manual (no photocopies) and take it to your authorized Commodore

Account of the second of the s

In fact, Byte Magazine said "Commodore has produced the most complete multimedia platform you can get in a single box."

You also get a one-year limited warranty. Plus the option of on-site Gold Service from CommodoreExpress.**

So hurry to your authorized Commodore dealer before June 30th, 1991. Or call

1-800-66-AMIGA. A deal this good only comes

along once every 300 years.

dealer. You'll get up to \$1,500 off an Amiga 3000 series computer.

The multitasking Amiga 3000 series has it all. 32-bit Motorola 68030 processor. Builtin hard disk control. Interlaced and non-interlaced (31.25 kHz) high resolution video. And four voice two-channel sound.

"See chart for qualifying Commodore and Commodore-Amiga CPU's. Subject to dealer participation. Power Up reward based on MSRP. See authorized dealer for details. Not valid in combination with any other promotional offer. Products available on GSA schedule GS-00K-91-AGS-5069. MSRP for Amiga 3000-16/50, \$2,999. 25/50, \$3,499. 25/100, \$4,699. Expires 6/30/91.

"Must be activated by the nuchaser."

34,797, 26/30, 39,797, 26/100, 34,097, Explires 0/20/71.

**Must be activated by the purchaser.

Commodore VIC 20, 64 and 128 are registered trademarks of Commodore Electronics Ltd. Amiga 500, 1000, 2000 and 3000 series are registered trademarks of Commodore-Amiga, Inc.



suite. For one thing, you can utilize DVEs on every edit. (Keep in mind that the Video Toaster is a switcher.) Another plus is the ability to do match-frame editing. By keeping the very last frame of the edit in one of the Video Toaster's buffers, it is possible to simulate an A/B roll system. With the built-in General Purpose Interface (GPI) trigger feature in the Video Toaster, all DVEs are done automatically, providing your edit controller is GPI-ready.

Profile #3: If you expand your Toaster-based system with two TBCs, three VCRs (two Source machines and an Editor), an A/B roll edit controller, a SMPTE Time Code Generator/Reader, and five monitors (two Sources, one Preview, one Program and one RGB), you can perform true A/B roll editing. Essentially, this configuration allows you to engage in editing much like the network big guys. This may seem like an expensive system, but it takes you to a level of editing that, up until now, you could achieve only through spending tens of thousands of dollars.

By adding a TBC to your suite, you can synchronize your two source players with the Toaster for perfect timing. You are able to dissolve or use one of the many DVEs, from live-action scene 1 to live-action scene 2 without having to freeze images. For example, VCR A has a close-up shot of Dan Marino as he is releasing the football. VCR B has a wide-shot of a receiver catching the ball. By setting our edit points, we can now roll VCR A for a fixed duration and at the appropriate moment dissolve VCR B into the scene. This type of editing has mostly been done in the domain of high-end, post-production facilities with a lot of money to spend-effectively locking out videographers with moderate budgets.

Profile #4: For a somewhat whimsical, mobile Toaster system, assemble a distribution amplifier, three cameras (at least two of them genlockable), a VCR recorder, six monitors (three Source, one Preview, one Program and one RGB), BNC cable, and a truck. Since most of the switchers used in mobile situations have boring wipes, fades, and other lackluster effects, plugging a Toaster into an already existing mobile unit would be a real shot in the arm.

Instead of the standard effects, you could use DVEs in addition to Chroma F/X, and a Toaster Character Generator (TCG). Preexisting framestore images would make a big differ-

ence in live production for local cable and independent networks. The setup for this system is unique in that it does not require a TBC. All that is necessary is to genlock cameras 2 and 3 to camera 1 via the distribution amplifier. For sports, concerts, rock and many other remote events, I see a lot of potential in this.

PROGRAM SLICES

The Toaster Character Generator produces fonts with 35 nanosecond resolution, which translates into very clean fonts that have an on-the-air look. And, although the interface takes a little getting used to, it does the job. The bottom-line crawl is smooth and works well over incoming video. The font-conversion utility allows the TCG to use Amiga fonts. Drop shadows and cast are adjustable, and there are a few Chroma fonts available in the default character set. You can also save pages as framestores, so that they may be used with DVEs in any number of ways.

Chroma F/X can do real-time colorimage processing on incoming video. You have probably seen live video on TV that looks painted. That look is just one of 32 presets that include solarize, rainbow, and zebra. The difference with Chroma F/X is that you can customize the look with the tools provided.

LightWave 3D is a full-blown 3-D animation system that produces screens in resolutions up to 1540×960 . My favorite feature lets you generate an almost unlimited number of textures, including snow, clouds, and even soil. The motion scripting in this program is superior to any other for the Amiga. As with most 3-D modelers, the learning curve is a bit steep, which is surprising, especially considering that firsttime users may purchase the Video Toaster. The Phone-Book 3-D object library contains some good objects, but would be more useful if it included more of the kinds of objects typically needed for production.

What has made a big difference in my work is having a true 24-bit paint program, ToasterPaint, built in (not in real time, however). The program compares favorably with other paint programs. With the transparency feature, you can create some slick-looking backgrounds. The ability to resize framegrabs with accurate scaling works well when you're applying composite techniques. In addition, you can load screens from both LightWave 3D and TCG directly into

T-Paint for further processing and manipulation.

BUG OUT!

There is a bug in the ToasterPaint framestores. This well-known glitch is being referred to as "The Zipper," and it appears as a dark line during trajectory-type DVEs. NewTek is reportedly working on this problem and claims that fixing it will decrease the load time of framestore files. I was able to go in and fix this manually in T-Paint.

The Video Toaster manual is packed with so much information that it barely fits into its binder. For the most part, the documentation is well executed. The manual's pictures are a great help in getting things into perspective. The documentation for LightWave 3D's Modeler could stand more tutorials and some more instructions on using the front end. The docs for Chroma FX are a little bit fuzzy—a more straightforward demo would help.

The Toaster Character Generator needs better support for larger fonts. Chroma FX does some great image processing on incoming video, but the processed frame unfortunately cannot be saved out as a framestore. Being able to process and then save the image would be a plus.

LightWave 3D is a powerful set of programs, but I would like to see more work done on the front end to make it easier to use. A few of the 3-D library objects use too few polygons, giving the final rendered object a faceted look that is unacceptable for truly professional rendering.

Being able to phase the four video inputs from software would make engineering much easier. Someday, I would like to open up ToasterPaint to a full screen. Scrolling around in T-Paint gets pretty tedious after a while. Also, the only way I can get a good gradient fill is to do the fill in the alternate buffer and then do a rubthrough fill on the original page. It would also be very useful to enable genlocking while in T-Paint in order to see how the graphics look over the incoming video. Animation should not be left to DVEs and LightWave alone; a 2-D animation module would really enhance this system.

NewTek has opened up an affordable, real-world platform, enabling us to produce our videos at a new level.

Special thanks to MPCS South for giving me full access to their Tektronics Video lab, and thanks to Wade Klipper and Michael Hicks for engineering support. ■

PRODUCTIVITY

Pagestream 2.1 169	Pelikan Press 64
Pen Pal85	Pagesetter II 74
Pro Write	Superbase IV 299
Pro Page 2.0 169	All in One 51.95
Desktop Budget 44	X-Cad Professional 139
Advantage	Can Do 84
Office	Deluxe Print II 50.95
Structured Clip Art 39	Showmaker CALL
Compugraphic Fonts 119	Screenmaker CALL
Softclips People, Classics .49	Wordperfect 155

N.J.'s Premier Amiga Dealer!

Call for current price quotes & latest releases! Many more items in stock at the lowest prices!

MEMORY EXPANSION

Baseboard Ok	256 K X 4 80 Dram CALL 1 mg × 1 80 Dram CALL	
Supra 8mb board w/2mbCALL Supra 512k for A50059		
CITIZEN DRINTEDS		

GSX140, 24 pin ... \$289 GSX200, 9 pin ... \$169 Color Option Available

GRAPHICS & VIDEO

Amigavision \$89	Imagine \$189
Animagic	Photon Paint
Art Department 52	Pixel 30
Art Department Pro 139	Pro-Video Post 147
Bread & Butter Fonts . CALL	Pro-Video Gold 147
Broadcast Titler II 224	Pro Draw 2.0 129
Cinnamon Toast Fonts 59	Scala
Color Splitter 105	Scene Generator 28
Disney Animator 97	Sharp JX-100 Scanner 689
Deluxe Paint 389	Spectra Color CALL
Digimate 3	Turbo Silver 59
Digipaint 362	T.V. Text Pro 98
DigiView Gold 4.0 119	T.V. Show 2.0 58
Golden Image Handscanner 265	Video Fonts 2 64
Kara Anim Font 1,2,3 29	Vista Pro
	The second secon

GOLDENIMAGE®

Master 3A-1 3.5, 880K disk drive	\$79.00
Hand Scanner with touchup, high resolution	\$259.00
Optical Mouse	\$ 50.00
Opto Mechanical Mouse	\$36.00
Amiga RC-500 512K RAM with clock for A500	
Cordless Mouse Amiga, 200 DPI, w/DeluxePain II Cordless Trackball	CALL
Amiga, 300 DPI, w/DeluxePaint II RC-1000	CALL
4 MB for A500	CALL
1 year warranty on all Golden Image pr	oducts.

HARDWARE

Flicker Fixer	
Ham-E	
Data Flyer 500 SCSI Interface A-500 .	\$149
Mega Midget Racer 33 MHZ, 25 MHZ	CALL

SYQUEST 44 mg • Removable Drive		\$449	
At Once Call	DC TVCALL	AD Speed CALL	

BODEGA BAYCALL	
Monitors	Genlocks
NEC Multisync 3D\$599	SuperGen \$609
Seiko CM 1440 565	SuperGen 2000s 1349
Seiko CM 1450 689	MagniGen CALL
Sony CALL	MiniGen \$189
Flicker Fixer239	Scanlock 769
Flicker Free Video CALL	Videomaster 1039

MISCELLANEOUS

Amax II	Keyboard Skins
Amtrack	500/2000/3000 17.49
Apro Draw II 459	Mouse Mat
Arexx	Perfect Sound 69
AudioMaster364	Quarterback 39.95
Bars & Pipes Pro224	Quarterback Tools 52
Cross DOS 25.95	SAS/Lattice C 5.1 194
ECE Mid 500/2000 \$49	Sound SourceCALI
JSTK Power Play 9	Soundmaster CALI
Tiger Cub	Your Family Tree

ENTERTAINMENT

	Dungeon Master 2CALL	
	Falcon\$31	
	Finest Hour	
	F-19 Stealth	
	Flight of Intruder37	
	Gun Boat	
	Killing Cloud CALL	
	Lemmings31	
We Carru I	European Imports &	Magazines.

Many More Titles in Stock. New Arrivals Daily! CD TV TITLES NOW AVAILABLE



FLIGHT TRAINER™

Experience white-knuckle flying thrills. More aircraft, new terrain, Flying Insights[™] audio tape, on-screen flight

school. FREE CAP!

Systems with GVP's Outstanding Quality & Performance

Enhance your Amiga



THE ICD ADVANTAGE New From ICD!

AdSCSI 2000

EYE OF THE BEHOLDER

combat! Only:

First graphically based AD&D® computer fantasy role-playing saga. 3-D graphics & explosive sound create intense face-to-face

Hard drive interface with unmatched speed and flexibility.

AdSCSI 2080

Hard drive interface with up to 8 megs of FAST RAM.

Best overall performance of any accelerator in its price range.

Smallest Amiga hard drive interface made. For IDE (AT) drives.

Flicker Free Video

Eliminates interlace flicker for any Amiga computer.

Novia 20i 20mb hard drive. Mounts inside A500

SPECIAL!

AD RAM 540 for A500

\$99

Call for Chip Prices

IS YOUR AMIGA SICK? Manta is a Full Amiga Service Center

NEV HEV MEN

We have the parts to put you back on track: · Rom Chips · Fatter Agnus · Drives

· Keyboards · Power Supplies



Optical Drives: Removable Media Accelerators: 68030 22 MHZ • 33 MHZ • 50 MHZ

Series II Controllers • A500 HD 42 • 52 • 100 mg NOW AVAILABLE: 22-33 MHZ 68030 & SCSI

Manta carries the full line of GVP products!

HARD DRIVE SPECIALS



SUPPO All Supra Products Available for Your Amiga. Call! A2000

A500 Supra RAM 500 RX Low Price 20 MB 500 XP w/1/2 MG CALL 40 MB 500 XP w/1/2 MG CALL 52 MB 500 XP w/1/2 MG......479 105 MB 500 XP w/1/2 MG659

40 MB Supra Drive..... 105 MB Supra Drive 549 Word Sync Interface99 Supra RAM 2000 0K 109

Supra Modem 2400 Plus

MODEMS

\$165

2400 Bd External \$99

FAX: (908) 542-3654 IN N.J. Call: (908) 542-1251

ORDER TOLL-FREE 1-800-477-7706 Walk-in Traffic Welcome!

115 Route 35 Eatontown, NJ 07724 **OPEN 7 DAYS**

Fems. VISAMC, Discover, certified checks and money orders welcome. School & Corporate Purchase accepted. Most items shippe 12 business days. Returns — all Items returned must have RMA # before returning. Defective products exchanged for same left most product products exchanged or repaired. All returned items subject to reachcain feet schipping mover-durable. Call for complete dealth. Amiga computers sold to walled in traffic only. All prices subject to change without notice. Prices may differ in retal location — 50 Misser Concepts. Earnows. Not responsible of typographics of propagations. use accepted. Most items shipped oducts exchanged for same item hipping non-refundable. Call for

DPS-**PERSONAL**

Finally, a Low End TBC Solution. . · Fits inside an Amiga · Full NTSC and SVHS . Full Frame Storage . Fully compatible with all VCR's & NewTek's Video Toaster · Genlocks to any stable video source. Call!

Video Toaster

Let MANTA upgrade your Amiga system to take full advantage of NewTek's Video
Toaster... • GVP Accelerator Boards 28-50 MHZ • Memory Upgrades • Hard Drive Packages • Removable Media • T.B.C. · Training Tapes...

MANTA's video consultants will tailor a package for your needs

Call for best package prices.

THE AMIGA EVENT 2.0

COMES TO FLORIDA

AmiEXPO brings the Amiga™ Event to Orlando, Florida - July 26-28, 1991! At AmiEXPO you'll find:

- * State of the Art Video, Graphics, and 3D Software
- ★ Hardware to Expand your Amiga to the Max
- ★ Bargains on the Hottest Software and Hardware
- * Amiga Classes, Seminars and Keynote Events
- ★ World Premieres of Major Amiga Products



KEYNOTE PRESENTATIONS WOW 'EM!

Each meeting day a special presentation will highlight the best in Amiga technology:

Friday, 5:00 PM THE AMIGA VIDEO MACHINE Special MultiMedia Event

AMIGA WORLD PREMIERE

Saturday, 12:00 Noon THE CDTV EXPERIENCE The Future of Home Entertainment AMIGA WORLD PREMIERE

5:00

Sunday, 12:00 Noon THE ART OF THE AMIGA Next Generation Graphics Today AMIGA WORLD PREMIERE

The Stouffer Orlando Resort, located at 6677 Sea Harbor Drive, is the show site and headquarters hotel. Rooms are available for a special AmiEXPO discount rate: \$110 Single or Double.

To make a reservation, call the Stouffer's directly at 407-351-5555 HOTEL DEADLINE IS JULY 2, 1991.

American Airlines, the official carrier for AmiEXPO is pleased to offer a 5% discount off any fare to Orlando. Call American at (800) 433-1790 and give them Star File # 07Z14K.

TICKETS NOW AVAILABLE

Advance registration will save you \$5 off the on-site fee - and time in line. Call us at 1-800-32-AMIGA with a Visa or MasterCard or return the coupon with a personal check or money order made out to AmiEXPO. PRE-REGISTRATION DEADLINE IS JULY 12, 1991

> ONE DAY TICKET **MULTI-DAY TICKET** \$20.00

These prices already reflect the \$5 discount. Prices are \$5 more at the door. No refunds or cancellations after the pre-registration deadline. Your registration to AmiEXPO includes admission to the Exhibition, Keynote Sessions, Amiga Seminars, and the AmiEXPO Artists Theatre. This Preliminary Program is subject to change.

PLEASE NOTE: You will receive a confirmation of your registration. No tickets will be mailed to you. When arriving at show site, go to Advance Registration to claim your tickets. If you are registering more than one person, please use a separate coupon for each person.

FREE AMIGA **SEMINARS**

AmiEXPO Seminars and Panels are all included FREE with your admission to the Exhibits. Each day, experience the best and the latest that Amiga developers and users have to offer.

FRIDAY

1:00	INTRODUCTION TO AMIGA UNIX
2:30	GRAPHICS OF THE 1991 ART & VIDEO AWARD
3:00	INSIDE WORKBENCH 2.0

SPECIAL KEYNOTE PRESENTATION SATURDAY

11:00	VIDEOS OF THE 1991 ART & VIDEO AWARDS
12:00	SPECIAL KEYNOTE PRESENTATION
1:30	AMIGA MULTIMEDIA
3:00	GRAPHICS OF THE 1991 ART & VIDEO AWARDS
4.00	EVTENDED OD ADLIG DIGDI AVC

SUNDAY

12:00	SPECIAL KEYNOTE PRESENTATION
1:30	AMIGA MUSIC/VIDEOS
3:00	VIDEOS OF THE 1991 ART & VIDEO AWARDS
4:00	NEXT GENERATION AMIGA GRAPHICS

SHOW HOURS July 26 July 27 July 28 Friday Saturday Sunday 1 PM to 6 PM 10 AM to 6 PM 10 AM to 5 PM

JULY 26-28 RELEASE

NOVICE CLASSES MAKE IT EASY

AmiEXPO offers two Novice Classes for those beginning with the Amiga and computing in general. Each class is 3 hours long, costs \$30 per person and is limited to 50 students.

BASIC AMIGA CONCEPTS

10-1, Fri. & Sun.; 2-5, Sat.

- Introduction to All Amiga Models All Peripheral Expansion
- Full Workbench Coverage Beginning CLI



UNDERSTANDING THE CLI

2-5, Fri. & Sun.; 10-1, Sat.

- · Unleash your Amiga's Power · Most Essential CLI Commands
- Exploring Public Domain The World of Telecommunications

There are six different topic areas, divided into Introductory (I) and Advanced (II). Each class runs 3 hours, costs \$60

MASTER CLASSES - MEET THE EXPERTS

To efficiently get the most out of your Amiga, you need an expert. Amiga Master Classes are designed to provide information on important professional topics.

AMIGA VIDEO

Instructor: Oran J. Sands III

VIDEO I

10-1, Friday and Saturday

- · Basic Video & Amiga Relationship · Video Hardware
- · S-Video vs NTSC · Video Software Overview
- 2-5, Friday and Saturday
- · Continuation of Video I · Optimizing Video Output · Video Toaster · Pro Video Post · Genlock Comparison
- AMIGA ANIMATION

Instructor: Steve Segal

ANIMATION I

10-1, Saturday and Sunday

- 2D Character Animation Digitized Animation
- Storyboarding Character Design Recording The Work 2-5, Saturday and Sunday ANIMATION II
- 3D Animation Character Modelling •
- Texture & Bump Mapping Solid Modeling Ray Tracing

AMIGA AREXX

Instructor: R. L. Stockton

AREXX I 10-1, Sunday

- · Basic Language Structure · Libraries
- · Host Addresses · String Handling
- AREXX II 2-5, Sunday
- · Commercial Applications · Non-Amiga Rexx
- · ARexx in WB 2.0 · Graphical User Interfaces
 - Registration is

\$5 More At The Door

AmiEXPO

Summer One day - \$15

Multi-days - \$20

Novice Class(es) - List Class and Time - \$30 Each

Master Class(es) - List Class and Time - \$60 Each

Total Amount Enclosed

AMIGA GRAPHICS

Instructor: Jim Sachs

- **GRAPHICS I** 10-1, Friday and Saturday · Basic Graphic Concepts · Anti-aliasing · HAM Painting
- · Palette Selection · Brush Painting · Stencils

per person and is limited to 40 students.

- 2-5, Friday and Saturday **GRAPHICS II**
- · Advanced Graphic Displays · Image Processing
- Animation Planning Beyond Bitmaps Going to Print

Instructor: Tony Dispoto 10-1, Saturday and Sunday

- 3D Concepts Modeling Rendering Engines Lighting
- · Scuplt-Animate 4D · Turbo Silver · Imagine
- 2-5. Saturday and Sunday
- Continuation of 3D I 24 Bit Rendering Use of Paths · Optical Disk Recording · 3D Animation ·

AMIGA MULTIMEDIA

Instructor: Steve Gillmor

- **MULTIMEDIA I** 10-1, Friday · Multimedia Defined · Choosing Your Tools
- · Hypertext and Hypermedia · Analysis of Student Projects
- **MULTIMEDIA II** 2-5, Sunday
- · Commercial Applications · ARexx in Multimedia
- · Multimedia Design · CDTV and CD-Rom Development

NAME	
COMPANY	
ADDRESS	
CITY	STATE ZIP
or MasterCard	or VISA Payment
Name as it appears	on card:
Signature	
Make (Check or Money Order Payable to:
AmiEX	PO • 465 Columbus Ave., Ste. 285
	Valhalla, NY 10595
	ramana, iti 10070



\$5.95 ea 1-9 Disks

\$4.95* ea 10-24Disks

\$3.95* ea 25+ Disks

* Anti-Virus Free on all orders with 15 or more disks!

Public Domain Library

We are the Offical Public Domain Library of Antic Amiga Plus, we have been the Offical PD library of Amiga World. Find out why these magazines choose us! Each of our disks are jam packed with only the best programs. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced - often contains source, WB# general interest - most programs can be run from the workbench, and FD# games and entertainment. Order our disk based catalog and receive a coupon for a complimentary volume with your next purchase. We always use only SONY disks!

Featured Disk

DD79abcd: Amiga C Programming Tutorial - This is the most comprehensive C language, Amiga orientated set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of mostAmiga programming topics. Four disk set, counts as three.

New Disks

FD55:Puzzles - Contains TripleYatz, a multiplayer, multigame yatzee clone. Also BoomSquad, an .info best of PD Pick (#39,pg 45), Adventure, Logic, and Mosaic; four very good ctrature and contains a contain the contains a FD55:Puzzles -

(#39, pg, 45), Adventure, Logic, and Mosaic; four very good strategy game! Includes SpaceWar, an info "Best of PD" pick (#39, pg, 45), HueyRaid a well done helicopter arcade game, and Game - a "GameBoy" emulator with a version of Tetris. WB87: New Testament: Contains the entire text of the New Testament in a well thought out user interface. Imb suggested. WB88abac: The Complete Bible - A three disk set, with the entire text of the New Testament and Torah (Old Testament) includes wB87: Imb suggested.
WB89:Education - Fish, not your everyday electric eel, but a fun to experiment with simulated fish aparjum. Also contains a

WB89:Education Fish, not your everyday electric eel, but a fun to experiment with simulated fish aquarium. Also contains a well done math quizzer, history, religion, geography and more. WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Music can then be played with your favorite PD Music program. Also contains Drums, a very nice drum machine. This disk does require moderate knowledge of the CLI.

WB1:AV Educational - of Europe, beautifully presents all of the flags of Europe along with maps and geographic statistics of the countries. Requires AV.

Other Great Disks!

FD5: Tactical Games - BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster

system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.

FD6: GAMES! - This disk is chock full of games including;
FD6: GAMES! - This disk is chock full of games including;
Checkers, Clue, Gold - A new slide the pieces puzzle, deopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.

FD9: Moria - This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amica. Great Amica craphic interface. Play time several

the Amiga. Great Amiga graphic interface. Play time several

FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also

computer. Contains extensive HELF Teatures, Also Thirty-One, VideoPoker and more.

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 11Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Desistans Passadide and others.

Dominoes, Paranoids, and others.
FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type

clone.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72); A game that

liates combat between two or more giant, robot-like hines. Simple words can't begin to give you the feel of machines. piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus

pilloting a 30 - 40 rot of tall, the Dietalling, earth shaking commercial that obeys your every whilm.

FD26-Arcade Games - Marble_silde, this is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants, a smally version of the arcade game of the same name, also

SuperBreakout a pong/arkanoids type game. FD27: Arcade Games - This disk is loaded with some great

games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.

breakout with more.

PD29: Shordem up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission. SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

PD31: Gamesi - Air Traffic Control - a good ATC simulation game. Black Jack Lab - a full featured set of card games (Chess Tel - play chess will your firend in distant and former than the properties of the properties of

maze game.

FD32:Flight Simulator - Includes an instrument flight simulator for a DC10

for a DCU.

FD33: Arcade Games - Ffreddy a mario brothers type of game. Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hillarious twist. FD34: Games - Includes WellTrix a derivative of the addictive. game of letris, and new version of BackGammon. Also included are several new "Schwabie type Hacks".

FD35 Omega (v 1.3) - A new outstanding dungeon and

FD35 Omega (v 1.3) - A new outstanding durigeori and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.
FD37a & b:Tactical Games - Empire (2.2w) This great game

comes highly recommended. With a full-featured graphic front

FD38:Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle e and construction set

game and construction set. FD39a & b.Tobias Star Trek - This is a new, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Very Excellent!!! Counts as two disks. Requires 512k memory, a 500, 2000 or Pal. FD40:Arcade - MiddleEast - a timely arcade game of death and destruction set in Iraq. BackToTheFuturell - a very playable demo version of this soon to be released commercial

game, City - a missile command clone.

FD41:Games - Includes Capital Gains - a stock market game,

FD41:Games - Includes Capital Gains - a stock market game, Ball a Arknoids type of clone with many great twists, and Desert Shield - a search and destroy conquer theme. FD42:Games - Includes SpaceWar3 - a remake of this original Amiga classic, Trippin - a fascinating board game of intrigue, strategy, and player manipulation, Dominion - an engrossing strategy game of galactic war and conquest, Frog - a frogger type clone, and Mines - a very good strategy board game. FD44: Game - Mechlight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new amiga 9000. Most of all, don't forget to stay alive...

FD45: Arcade - Three good shoot'em ups. Batman - save the city from the Joker, DriveWar - gangsters are moving in on your territory, stop them at all costs, Web - a spidery, buggy affair of eat or be eaten.

Pd47: Arcade Games - Contains DownHill - a demanding computer slalom ski rame, MicroPac - a Workbench mini-pacman game, CrackOut - a break out clone, Jet - a superb aerial doglight game, AmegaRace - an interesting asteroids type of game, and WindyDay - a unique arcade shoot'em up

FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters

and more.

FD50: Submarine Game - Sealance, one and a half years in
the making, this is an outstanding submarine tactical game.
Commercial quality, highly recommended.

FD51: Games - DesertStorm a fast action arcade game,

FD51: Games - DesertStorm a fast action arcade game, Amigatraion a well done concentration game, Chute a parachute jumping game, Running a dungeon adventure game similar to Wanderer, and Soliv a solitary card game. FD52: Classics Games - PetersQuest a well done Mario borthers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game, is a wonderful implementation of the ever popular classic arcade game Delender. Also contain Air Race a WWII flying ace arcade

game, and Psycoblast new creation idea game-FD54: FoodFight - Contains Galactic FoodFight, a wacky spaced out arcade game loaded with shooting ketchup, and hamburger eatling monsters, and flying pizzas.

WB2: General Interest - contains, Galaxy a program that represents the collision of two galaxies, Larn - an adventure/action game similar in concept to roque or hack, but with a much different feel. Try it, you'll like til, StarChart - a program that lets you display and identify about 600 stars, galaxies and nebulae visible in the Northern hemisphere.

WB4.Telecommumication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made over the Amiga, Handshake (2.12a) Handshake is a Full featured VTS2/100/102/220

WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts, and ShowFont - a font displey program.

display program.

WB6: Video Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps,

WB9:Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities

Also includes IconMiester, Iconicat, and onto great to help generate icons.

WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3),

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and much

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A real must

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make

your own. WB14: Video on this disk are several utilities for the video enthusiast. We have included multiple slates, video titting. Bars and Tone, Gray Scale. Screen fades and swipes, Interlace toggles, and SMPTE Calculators. Also on this disk is a full featured video cataloging program. WB15: Business - This disk contains a spreadsheet, a

database, a project/time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: Word/Text Processors - This disk contains the best editors. Includes, TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features, TexED(v2.8) an enhanced Emacs type editor, and a spell checker.

WB20: General Interest - DiskSalv V1.42 a disk recovery

program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLookt gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any rt of an image.

wB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word

processors.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of definited function, bezebunt2 - produce awesome pictures or objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compabilitie with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP with the country of the production of the production of the production and plant - On this disk, DA a complete

wB24.Animation and Paim* of Initis disk, page decompercial quality cell orientated animation package. Movie an "ANIM" player for standard animation. GuickFlix an IFF side show and cell animation program. Also on this disk are two PD paint programs of good quality.

WB25.Educational - On this disk are two programs that can generate maps of differing types. World Data Base uses the CIAs data hase to neperate detailed maps of any entered

WB22: Buselining to the state of the state o

w829: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, Mandelbrot type programs for generating stunning graphics. Includes, Mandelbrot mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk, you'll love it

WB33:Circuit Board Design - several terrific routines for the wbs.schrout board besign several mine routines to the electronic enthusiast, including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into

WB34: Utilities - Several well done utilities, some will require WB34: Utilities - Several well one utilities, some will require moderate knowledge of a Clu or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

WB35: 3d Graphics - This disk contains several neat wb33: 3u Graphites - Inis olish continuins several meprograms to use with your 3d modeling/raytracing programs 3dFonts - Full vector fort set for use with 3d programs FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any Image, DumptolFF - create 3d animations preserves pallet, and DumptoIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with

WR36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose,

variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics. Wb37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15 WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Dratting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.

that neighs generates faintable looking, recursive wice. Cerolically pepictures:

WB39: Music - Intuitracker is a German offering of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.

WB40: Music - "CD on a disk", 90 minutes of modern music

WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection.
WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to Sound Tracker but better. Very powerful easy to use program.
WB43:Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!
WB46:CIlp Art - HighRes clip art with the following motifs - embellishments (borders, dodads ...), people, and



transportation. WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49abc:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc. dos2010. Impact, and looodemo). These truly

graphics and obstanting electronic misst aximized copersine, doc. dps2010, impact, and logodemo). These truly shw bf of the creative edge of an Amigal when the comment of the creative edge of an Amigal when the comment of the comme

WB51: Animation- On this disk are two excellent movie style

waves, and woow. WB51: Animation- On this disk are two excellent movie style animations including ShipRotation - a futuristic space ship orbiting a surrealistic world (one of the best), and RV-3 - a dipaintill anim of a rather wacked out airplane. WB53:Graphics- The disk contains C-light - The easiest to use raytracing we have seen to date. This one started out life as a full featured commercial product similar to Sculptod. Raytracing programs can generate stumming, realistically similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more... with the chore of printing, Includes Gothic - Finally a Banner printer for the PD! Printstudio - a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII fills to a PostScript printer, and many more. WB55:Application - XCopyIII - a full featured disk copier, make backups of write protected disks. RoadRoute - find the quickest route from one city to another, highway description included, Diany - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.

WB57:Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and

xenmorph.
WB59:Business - contains a great, very full featured stock
market technical analysis and tracking program, also an
appointment calendar, and more.

wB61:Intermediate Utilities - Includes programs to help to drastically decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn

(antilick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.

WB62:Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.

WB63:Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK

drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks. WB66:Lons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures. WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to. mod fligs which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.

with a separate envelope design window and 16 relative harmonic strength and phase angle controls. WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga. WB70:Desk Top Pub - Atcp - transfer Macintosh screen fonts Mac or IBM format AFM metric files, to Amiga screen fonts and PPage .metric files. With this program open door to the libraries of Adobe and PostScript typel, Calendar - month templates in PS form, Post - a full featured post script file display and print utility.

display and print utility.

WB71:C64 Emulation - The A64 Package is a complete, very

WB71:C64 Emulation - The A64 Package is a complete, very powerful, Commodors 64 emulator.
WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.
WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility. SSS - this screen capture program can grab almost any screen including games, Today - a personal calender, Tarot - fortune teller, and Grammar

grammar checker.

WB78: AV - On this disk are two Amiga Vision programs (bubbler, sync) written by Lou Wallace, chief technical editor of Amiga World. These programs are marvelous examples of

WB79: Home & Business Accounting - Includes Ckbacct -WB79: Home & Business Accounting - Includes Ckbacctthe most complete checkbook accounting program going,
LCDCalc - this well done calculator has a very large display
and operates from the keyboard or mouse, Mileage master monitor your automobile mileage with this mileage log,
Grammar - a grammar checker, and Worldtime - find out what
time it is in up to 50 global cities.
WB80:Graphics - Haytracing programs generate absolutely
stunning realistic looking planes, rockets, buildings..., and
surreal images often consisting of highly polished spheres and
objects. 3-D Master is the most powerful EASY-TO-USE of
it's kind we have seen to date. This is easily better, and more
full featured, than similar commercial programs costing in the
hundreds of dollars.

nundreds of dollars

hundreds of dollars.

WB81: Great Applications - DataEasy a very easy to use, database program. Dort let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-fort banner maker, and Budget a home accounting in a program. Highly recommended.

WB82:Animations - Four full length, well done "movie" style animations. Including, Coyote, Jugglerfl, GhostPool, and Mechanix. Two disk set, counts as one!

WB83: Computer Art - this disk has some of the best Amiga energrated computer at that we have collected in the past 5

generated computer art that we have collected in the past 5

WB85: Craphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff image processing package.

WB86: Amiga Vision - Contains the Centurion Press, An Amiga newspaper by Lou Wallace.

D945: AREXX PROGRAMS - This disk contains several useful arexx programs and examples, PopCLI4 - The latest of a must have utility.

D047: Pescal - This disk contains everything needed to program in Pescal. Includes, A66k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.

compiler.

DD49: C Compiler - contains zc(1.01) fully K&R, zcc(1.0) fund end, A68k(1.2) assembler, Bilnk linker.

DD50: ARex #2 - a must have set of tuorials on ARexx and several useful examples and utilities for Arlexx development.

DD51: Clirutul Analysis - Aspice (2.3) A full featured program

for electric circuit analysis.

DD52: Scientific - Includes Elements - an incredibly well

SONY Blank Disks

10 for \$8.90 (.89 cents ea) 25 for \$18.90 (.76 cents ea) 50 for \$34.90 (.70 cents ea) 100 for \$68.00 (.68 cents ea)

No shipping charge on USA blank disk orders, Canada and Mexico add \$.15 each, Other foreign add \$.50 ea.

done periodic table program with source, Scientific plotting -over 600k of Lattice C source routines that can be included in

over sounk of Lattice C source routines that can be included in your own programs.

DD54: Compression - This disk is loaded with ALL of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc(2.3), Lharc(1.0), Lhwarp(1.03), Pkax(1.0), PowerPacker(2.3a) a must have by all, Zip(1.0), Wapr(2.04), and Zoo(2.0). Also in the program and program of the program and program of the program of the

help in basic programers, and Xscheme - an interpreted object

nelp in basic programers, and xscheme - an interpreted object oriented language. DD64 Amilga Programmers Manual - The fully comprehensive Amiga programming manual with source code examples and easy to inderstand the programming manual with source code oxide and easy to inderstand the programming manual with source code oxide and easy to independ on the program the Amiga. Includes tutorials and working examples on Device drivers, IFF reads and writes, Sound implementation, Arcade game design and implementation, Double Buffering, and others. A must have for Amiga Programmers.

Programmers.

DB66 Programming ToolBox - Many programs to help in your development efforts (most for C some for basic) Includes programs to generate requesters, an incredible spritemaker toolbox, to greatly aid compiling, convert DPaint brushes to structures, a great library manager, and many more wonderful structures, as great library manager, and many more wonderful structures, as great library manager, and many more wonderful structures.

DD69:Advanced Utilities - SerNet and ParNet - Connect two Amiga's and share resources, MemMonitor - Similar to WFrag but greatly improved, Selector - put menus on your workbench

DD71:C compiler - This disk contains Dice, Matthew Dillon's DD71: Compiler - This disk contains Dice, Matthew Dillor's full featured, powerful C compiler and environment system. DD72:VT Emulators - Contains three powerful, full featured with many advanced features including kermit, xmodem and tektronix protocols. Vax Term, VLT, and more. DD77: Fortran - Contains a full featured FORTRAN77 environmental development system. Also contains EzAsm a strongly macro dependent 68000 assembler. DD78: Menus & System Enhancements - Several neat programs to aid in launching programs from special icons (Next computer style), adding WorkBench menus and more. Also contains many useful programs to determine operation system configuration, memory usage, load and many other important utilizations.

important utilizations.

required on credit card orders.

			14
lease send me the following:	Total disks	x \$each \$	
	Disked based	catalog (add \$2.50) \$	
inter disk id (Ex. DD17, FD5, WB	Ant Ant	ti-Virus (add \$19.95) \$	
		Blank Disks# \$	
		add 7.00% sales tax \$	_
		Foreign Shipping \$	
	[] Payment Enclosed [] Please charge my	Handling \$ 2.00	0
	_ [] Visa	3 ,	
	 [] Master charge 	Total Due \$	
	_		
\cccunt#	Evn	Following day shipping in mo	ost
Account#	Exp	- cases. No shipping charges with	
Signature		_USA, Canada add \$.25 eac	
Name		Foreign add \$.50 per disk for a mail delivery. Payment in U	
Address		funds. A minimum of \$20	

DevWare, 12528 Kirkham Court, Suite 11-A16, Poway, CA 92064 **Orders Only Please!** 800 879-0759 **Support** 619 679-2825 **Fax** 619 679-2887

Phone (



Great Prices! Superb Service! For information or price listing: 414-548-8125 414-548-8140

Secret of Monkey Island42.99 Soft Clips: Classic Clip Art

TIFF Module 34.99

46.99

..... 58.99

Search for the King ...

SpectraColor

WARE & PERIPHERA		
Spotlight on Software		
AMOS (Game Creator)	59.99	
Animation Studio		
Armour-Geddon		
Art Department Professional	149.00	
Art Dept Pro Conversion Pack	55.00	
AudioMaster III	60.00	
Awesome		Г
B.A.D. 4.0	31.99	
Bane of the Cosmic Forge	35.99	
Bard's Tale III		
Bars & Pipes Professional		
Bars & Pipes Optional Disks	37.99	F
Baud Bandit		F
Blitz BASIC		F
Blue MAX	35.99	٦
Brigade Commander		
Broadcast Titler II		
CanDo 1.5		
Captive	29.99	
Carthage		
Chaos Strikes Back	24.99	
Cross DOS 4.0		
Curse of the Azure Bonds		
Das Boot	35 00	

DigiPaint 3 61.99

DigiVlew Gold 130.00 Director 2.0 79.00

ICD, Inc.

Ad IDE 40 Shuffle Board 32.99

AdRAM 540 0K 115.00

AdSCSI 2080 185.00

Flicker Free Video315.00

E-Z FM Synthesizer 36.99

Electric Thesaurus31.99

Excellence! 125.00

Eye of the Beholder 43.99

Falcon 33.89

Ham-E (Anti-alias version) 395.00

Harpoon BattleSet #2 or #324.99

HISoft BASIC Professional 57.99

HyperBook 64.99

magine 195.00

Indianapolis 500 34.99

Lattice C SAS/C 199.00

Lemmings 31.99

MR Back-Up 34.99

Macro Paint (Lake Forest Logic) 79.00

Maxi Plan + 58.99

Monopoly31.99

PageStream Forms: Business 24.99

Pelican Press 58.99

Pixel 3D 52.99

PowerPacker Professional 19.99 Proper Grammar 59.99 Pro Vector 175.00 Pro Write 3.0 95.99 QuarterBack Tools 53.00 Qwikforms for PageStream25.99

Moonbase PageStream 2.1 189.00

GIF Module

ImageFinder

......109.00

235.00

30 50

45.99

Workbench Management System . 32.4 World Class Soccer	99
Applied Engineering	
DataLink 2000/MNP/Send FAX 179.00	8
DataLink Express/MNP 185.00	8
DataLink Express/MNP/Send FAX . 205.00	8
Roppy Drive 880K95.00	8
Floppy Drive, High Density 195.00	8
Power Supply 500, Heavy Duty 88.00	8
***************************************	æ

Vista Professional

Spotlight on Hardware	9
	0
ppy Drive 880k	B
ppy Drive, High Density 195.00	B
ppy Drive 880K 95.00	ю

Accelerator, GVP SCSI 22 MHz 899.00
Accelerator, GVP SCSI 33 MHz 1635.00
Accelerator, Sapphire 68020 269.00
ATonce 269.00
ATonce Adaptor 2000 85.00
Audio Engineer
Color Splitter 106.00
DC TV
FireCracker Board 889.00
flickerFixer
Floppy Drive, Internal 500 90.00
Floppy Drive, RocTec Slim 89.00
HardCard, GVP 42F Series II 0/0 429.00
HardCard, GVP 105Q Series II 0/0 599.00
HardCard, GVP 42F Series II 8/0 475.00
HardCard, GVP 52Q Series II 8/0 519.00
HardCard, GVP 105Q Series II 8/0 629.00
Harddrive, Impact 500/42F Ser II . 585.00
Harddrive, Impact 500/52Q Ser II 629.00
Harddrive, Impact 500/105Q 899.00
IllumiLink 89.99
Imagine Companion Book/Disk 21.99
Making Music on the Amiga Book . 26.00
MegaChip 2000 Board 235.00
Mouse, Beetle Mouse 42.00
MIDI, Phantom SMPTE 199.00
Modem, Courier V.32BIS 14.4 679.00

Supra Corporation
Floppy Drive, SupraDrive 99.00
Hardcard, 40Q W/ Word/Sync 369.00
Hardcard, 105Q w/ Word/Sync 579.00
Harddrive, Supra 500XP 40/2 539.00
Harddrive, Supra 500XP 52/2 589.00
Memory Module, 2 MB 229.00
Memory, SupraRAM 2000 2 Megs. 190.00
Memory, SupraRAM 2000 4 Megs. 275.00
Memory, SupraRAM 500RX 8/1 135.00
Memory, SupraRAM 500RX 8/2 215.00
Modem, 2400+ (MNP & V.42bis) 169.00
Modem, 2400 MNP (Levels 2-5) 149.00
Modem, 2400zi+ (MNP & V.42bis). 159.00
SCSI Controller, 500XP 199.00
SCSI Controller, Word/Sync 110.00

Ser Commondy Wordy Cyric minimin Tresco
Perfect Sound 3.0 69.00
Personal TBC 799.00
Printer, TI PostScript PS 35 1695.00
Removable Harddrive, Ricoh 799.00
SCSI Controller, GVP Series II 0/0 155.00
SCSI Controller, GVP Series II 8/0 210.00
SCSI Controller, Malibu 129.00
SCSI Controller, Nexus 235.00
SCSI Controller, TrumpCard Pro 215.00
Syquest 50 MB Removable 407.00
Syquest Cartridges 95.00
Trackball, AmTRAC 69.99
Ultimate Guide to Video Toaster 39.99
Video Master, VIDTek 1075.00
Video Toaster1459.00

Orders Only Piease: 800-544-6599 Visa/MC/CODs

Make Safe Harbor YOUR Computer Port

W255 N499 Grandview ■ #204 ■ Waukesha, WI 53188 ■ 9 AM to 5 PM Mon.-Sat.

34 99

Manufacturers'/Distributors' Addresses

Absoft Corp. 2781 Bond St. Rochester Hill, MI 48309 313/853-0050

Advanced Storage Systems A division of Preferred Technologies 14540 E. Beltwood Pkwy.

Dallas, TX 75244 214/702-9191 800/878-0010

American Software Distributors 502 E. Anthony Dr.

Urbana, IL 61801 217/384-2050

925 Stewart St. Madison, WI 53713 608/273-6585

Beta Unlimited 87 Summit St. Brooklyn, NY 11231 718/852-8646

Blue Ribbon SoundWorks 1293 Briardale N.E. Atlanta, GA 30306 404/377-1514

California Access 130A Knowles Dr. Los Gatos, CA 95030 408/378-0340

Cinemaware Corporation 4165 Thousand Oaks Blvd. Westlake Village, CA 91362 805/495-6515

CDTV Publishing See Commodore Business Machines

COMAL Users' Group 5501 Groveland Terrace Madison, WI 53716 608/222-4432

Commodore Business Machines CDTV Publishing 1200 Wilson Dr. West Chester, PA 19380 215/431-9100 215/436-4200

Comspec 74 Wingold Ave. Toronto, Ont. Canada M6B 1P5 416/785-3553

Concise Logic 36 Tamarack Ave., Suite 315 Danbury, CT 06811 203/746-6739

7564 Trade St. San Diego, CA 92121 619/566-3911

Delphi Noetic Systems PO Box 7722 Rapid City, SD 57709 605/348-0791

Diaquest Inc. 1440 San Pablo Ave. Berkeley, CA 94702 415/526-7167

DigiScape Software PO Box 113058 Carrollton, TX 75011 214/241-9891

Digital Creations 2865 Sunrise Blvd., Suite 103 Rancho Cordova, CA 95742 916/344-4825

Digital Micronics 5674-P El Camino Real Carlsbad, CA 92008 619/931-8554

Digital Processing Systems Distributed by Midwest Communications

Dynamix 99 W. 10th, Suite 337 Eugene, OR 97401 503/343-0772

Edge Interactive Media 151 S. El Molina Ave., Suite 201 Pasadena, CA 91101 818/577-9375

Electronic Arts 1820 Gateway Dr. San Mateo, CA 94404 415/571-7171 800/245-4525

Continued on p. 99.

RX Tools

Scala 289.00

Scene Generator31.99

Screen Maker239.00

MAVERICK V2 for the AMIGA

Five Years Of Experience On A Single Disk

When we started making Commodore backup products, we started making history Our Maverick for the Commodore has become the single most successful archival utility system ever created for the C64/C128 computers. We pioneered innovations that made Maverick the ONLY logical choice for the serious user. History is repeating itself.

Our new Maverick for the Amiga is a ground breaking product! It is unlike anything you've ever seen for the Amiga before. You use it without fumbling for pull-down menus or searching through overlapping windows. The Maverick Amiga screen is a clean, modern control panel designed to allow you to intuitively operate the system as if it were a physical piece of hi-tech equipment. Options abound. These include features like:

Hypercopy: High speed, effortless, error free data duplication.

- ★ Parameters: Our own custom routines backed by 5 years of experience.
 ★ OverRide™: A new tool that makes a program useable on a hard drive by COMPLETELY de-protecting it!
- Inspector: Our MFM track editor featuring whole track or data block modification capability macros for automation and best of all - 'Backup Buddy' compatible!
- 'Backup Buddy' support to allow easy, reliable backups of some of the thoughest to duplicate titles on the market.
- ★ More parameters keep you up to date with today's fast paced software releases. There's more: For a minimal fee, registered Maverick owners can upgrade their system to the newest version, including new expansion modules and additional new parameters, every 90 days! Maverick Amiga was actually designed with future expansion capabilities built right in. And experienced users can even create and store their own custom copiers, accessible right from the main control panel, just as if they were built into Maverick from the factory!

When you're ready to spend your hard earned money for an Amiga backup utility, keep this in mind: There are lots of copiers on the market, but there's only one complete archival utility system — Maverick

MAVERICK AMIGA V2

ONLY + S&H

Available from your local dealer or contact us directly:



A MAN'S BEST FRIEND IS HIS DOG AN AMIGA'S **BEST FRIEND IS THE** 'BACKUP BUDDY™'

Ready to add another drive to your system? We've got some good news for you: for nearly the same price as an ordinary drive, you can buy the brand new Maverick Amiga 'Backup Buddy' drive!

The Backup Buddy drive (sold ONLY to registered Maverick Amiga owners) is a superb Konyo drive that we've worked our special magic on. We've added our own custom engineered speed control circuitry to create a unique new tool.

Used alone, the 'Backup Buddy' is as fast, reliable, and compatible as any other Amiga external disk drive. But, used with the Maverick Amiga, the Backup Buddy becomes the newest weapon in the Archival Utility System arsenal, easily letting you backup titles that could NEVER be reliably duplicate before now! The 'Backup Buddy' is another demonstration of our commitment to the Maverick tradition: Always be the best.

THE 'Backup Buddy' DISK DRIVE

Available Only From Software Support International to registered Maverick Amiga owners.

SOFTWARE SUPPORT INTERNATIONAL

2700 N.E. ANDRESEN ROAD • SUITE A-10 • VANCOUVER, WASHINGTON 98661

Write or call us for more information or our current 1-800-356-1179

Circle 46 on Reader Service card

DEALERS SELL

Selling AmigaWorld will make money for you. Consider the facts:

Fact #1: Selling AmigaWorld increases store traffic-our dealers tell us that AmigaWorld is the hottestselling computer magazine on the newsstands.

Fact #2: There is a direct correlation between store traffic and salesincrease the number of people coming through your door and you'll increase sales.

Fact #3: Fact #1 + Fact #2 = INCREASED \$ALE\$, which means money for you. And that's a fact.

For information on selling Amiga-World, call 1-800-343-0728 and speak with our Direct Sales Manager. Or write to AmigaWorld, Direct Sales Dept., 80 Elm St., Peterborough, NH 03458.

Become a part of the **AmigaWorld Programming Team**

We're looking for quality programs to support the growth of the AmigaWorld product line and we need your help.

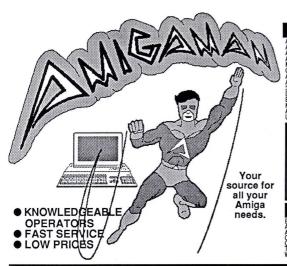
We offer competitive payment and an opportunity for fame.

■GAMES ■ ANIMATION ■ 3D ■ UTILITIES ■APPLICATIONS ■ CLIP ART AMIGAVISION APPLICATIONS ■OTHER STAND-ALONE APPLICATIONS

Send your submissions or contact us for guidelines:

Amiga Product Submissions Mare-Anne Jarvela (603) 924-0100 80 Elm Street, Peterborough, NH 03458





Floppy Drives

Accelerators

Hardware (misc)

\$279 \$249 \$99 \$309 \$89

AT-Once Flicker Fixer Flicker Fixer's DEB 2000 Ad Flicker Free Video

Ad Flicker Free Video AE HD A500 Powersupply

GVP

AE 880K external AE 1.52MB external AIR Drive 880K external Master 3A-1 external Master 3A-1D W/Display Roctec Ultra Silm external A2000 internal drive

Mega Midget Racer 25Mhz AdSpeed

MEW

Books

Amiga for Beginners
Amiga Dos Cuk Ref. Guide
Amiga Dos Inside & Out
Amiga Basinside & Out
Amiga Basinside & Out
Amiga Basinside & Out
Amiga Color Beginners
Amiga Printers Inside Out
Using Arexx

\$13

Education Barney Bear (ea) Carmen Sandiego (ea) Distant Suns 4.0

Distant Suns 4.0° Distant Suns 3.0 Katie's Farm Math Blaster Plus McGee McGee Fun Fair Talking Animator Talking Coloring Book

\$22 \$31 \$59 \$35 \$35 \$25 \$31 \$25 \$41 \$19

Software

Arexx A-Talk III Baud Bandit DiskMaster Project D 2.0 QuarterBack QuarterBack Tools

Productivity

Utility

\$31 \$62 \$30 \$31 \$37

\$40 \$50

Excellence 2.0 Maxi Plan Plus 2.0 Page Stream 2.1 Pen Pal Professional Page 2 \$125 \$62 \$185 \$86 \$179 \$62 \$89 \$46 \$329 \$175 Peň Pal Professional Page 2.0 Proper Grammer Prowrite 3.1 Quick Write

SuperBase Personal 2 SuperBase Prof. 4 WordPerfect **Professional**

Page 2.0 st popular DeskTop

Special \$179 PS TYPE Fonts Outline Fonts \$37 \$125 \$37

PROWRITE 3.1

●100,000 dictionary ●Thesaurus ●Selectable fonts ●Arexx Support ●Use IFF & HAM Pictures w/text

\$89

Video

S31 NEW AmigaVision ChromaKey Deluxe Video III Deluxe Video III Director 2.0 Pro Video Post Scala TV Show V2 TV Text Pro

\$23 \$12

\$92 \$62 \$129 \$99 \$192 \$125 \$62 \$59

\$124 \$219 \$69 \$209 \$249 \$59

BROADCAST TITLER II \$219

\$89 \$349 \$99 \$73 \$299 \$62 \$62

ISTA **Only \$35**

Requires 1MB RAM

VISTA

\$85

Requires 3MB RAM

IMAGINE Best seller \$189

Bars and Pipes Bars and Pipes Pro Delx Music Const. Set Dr. T's Copyist DTP Dr. T's K.C.S. Level II v3.5 Dr. T's Tiger Cub PROFESSIONAL

Only \$219

Give Your Ideas a Chance to Sing with

this Best-Selling Music Package

DISTANT SUNS v4.0 \$59

1MB Required

Distant Suns 3.0 512K req.

CDTV Titles

Barney Bear School All Dogs Go to Heaven Adv. Military Systems Classic Board Games Case of Cautious Condor Teenage Ninja Tour eenage Ninja 1 con Vorld Vista Call for New Titles

Genlocks

Input Devices

FOOT

Universal Mouse/Joystic Switch

Modems

Supramodem 2400 external Supramodem 2400w/mnp-5 Supramodem 2400 pius Supramodem 2400zi AE DataLink Express ext. W/MNP-5 W/SendFAX AE DataLink 2000 int. W/MNP5 W/Send FAX

Amiga 500

Monitor Stand

\$209 \$649 \$1449 \$1029 \$1449

\$69 \$59

BIG

150Wat Powe

\$29

only\$95

Entertainment

A-10 Tank Killer Armour-Gedden Atomino Awesome Bane of Cosmic Forge

Bare of Comic Forge
Centurion
Crimewave
Days of Thunder
Days of Thunder
Dash Knight of Krynn
Dash Knight of Krynn
Drackshen
Dungeon Master 2
Elvira: Mistress of the Dark
Eye of the Benotier
Falcon Missions 1 or 2
Flight of the Intruder
Gold of the Aztecs

\$35

\$37 \$25 \$37 \$34 \$31 \$19 Call \$31 GUNBOAT

GUNEOAU MUNUMBA

Hoverforce Immortal Killing Game Show Kings Bounty

Lemmings M1 Tank Platoon Monopoly

Monopoy
Overdrive
Overlore
Overlore
POA Golf
Power Monger
Quest for Glory 2
Search Money Island
Shadow of the Beast 2
Sim City Graphics or 2
Sim City Terrain
Sword of Sodan
Turrica
Ultima V
Wolf Pack

Deluxe Paint III
Digi-Paint 3
Digi-View Gold 4.0
Disney Anim. Studio
Imagine
Professional Draw 2.0
Spectracolor
Turbo Silver 3.0

Graphic Arts

Music

onopoly

Supergen Supergen 2000S Video Master Video Toaster

Boing Optical Mouse G.I. Opto Mech, Mouse

G.I. Opto Mech. Mouse Gold Img. Optical Mouse Univ. Mouse/JoystickSw BatHandle Joystick Boss Joystick Slik Stik Joystick Tac 50 Joystick Amtrac Trackball Kraft Trackball

2 joysticks to Amiga

DataFlyer

2000 Budget hard drive solution for your A2000

Memory-A2000

2000 RAM Board 2MB 2000 RAM Board 4MB 2000 RAM Board 6MB 2000 RAM Board 8MB

HARDWARE

Controller only \$85 W/52 MB Quantum HD \$349

Hard Drives-A2000

DataFlyer 2000 GVP HC/0 Series II GVPHC8+0/0 Series II Supra Wordsync 52MB Quantum LPS 105MB Quantum LPS 105MB Quantum LPS \$85 \$159 \$219 \$119 \$299 \$419 \$519

Midi Gold 500 Midi Gold Insider Phantom SMPTE MIDI

ECE Midi

Midis

\$49 \$56

Perfect to use with Disney's Animation Studio, / DigiPaint 3, Deluxe Paint III, and more DAKOTA

SketchMaster

12x12 Tablet \$429

12x18 Tablet \$599

Digitizers & Scanners \$48 \$109 \$62 \$67

Digitization Sea AutoDroid Card Splitter Copy Sland Digitization Sea Figure Wilder Julio Sanner Works Pan 1410 Cam.wilens DCTV Audio Enginer Audio Enginer Audio Sanner Sound Soo 3.1 Sound Master

\$449 Digi-View 4.0 nius. \$599 \$265 \$699 \$2999 \$199 \$189 Copy Panasa

Digi-View System

1410 camera w/lens, Autodroid, video switch, and all cables. The only complete system

SHIPPING - WITHIN 2 BUSINESS DA UPS GROUND -\$99 5% MIN \$4

UPS GROUND - \$99 5% MIN \$4 \$100 TO \$199 4% MIN \$5 \$200 TO \$499 3% MIN \$8 \$500 - 2% MIN \$15

UPS Blue add \$5.00 to UPS Ground
UPS Red add \$10.00 to UPS Ground

\$389 Disk drive mounting kit \$15

The ICD Advantage
AdSCSI 2000 \$129
Hard drive interface with
un-matched speed and flexibility

Memory-A500

\$49 \$229 \$59 \$139 \$109 \$109

\$569 \$629 \$859 \$549

RC500 512K RAM exp. RC1000 2MB RAM ext. SupraRam500 SupraRam500RX(1MB) BaseBoard 0K RAM ADRAM 540

Expansion Systems

512K 1MB

2MB

BASEBOARD

Expand your Amiga 500 RAM 512K to 4MB

\$109 \$134

\$159

\$209

Hard Drives-A500

DataFlyer

500

Budget Hard drive solution

for your A500 Controller only \$165

W/52MB Quantum \$429

Bodega Bay

DataFlyer 500 ICD Novia I Internal 20MB GVP A500-HD8 +0/42F GVP A500-HD8 +0/52Q GVP A500-HD8 +0/105Q Supra500XP w/52Q

Trumpcard 500 Trumpcard Pro 500

AdSCSI 2080 \$18 Hard drive interface with up to 8 megs of FAST RAM AdSpeed \$216

Best Overall performance of any accelerator in its price range

Flicker Free Video \$309 Eliminates interlace flicker for any Eliminates interla Amiga Computer

AdRAM 540 \$109 Add up to 4 meg of RAM internally in your Amiga 500 AdRAM 2080 \$123 8meg internally in your 2000/2500

New From ICD AdIDE
Smallest Amiga hard drive interfar
made for IDE(AT) drives
1DE44
\$123
for your 2.5 inch hard drives
1DE40
for your 3.5 inch hard drives

Novia 201 \$519 The Smallest hard drive and inter in the world for your Amiga 500. CALL Novia 601

Now you can have the Novi 60 meg 2.5 inch hard drive. Prima 521 CALL
Now mount a 3.5 inch IDE drive
internally in your Amiga 500, 1000
or 2000

Prima 1051 CALL 105megs internally in your 500, 100 or 2000 Shuffle Board CALL
Reroutes df0: to the external floppy
connector. Boot from external floppy

Drawing Tablets \$429 \$599

Sketchmstr 12x12 Sketchmstr 12x18 ma Graphics II Tablet

9 - 8 M - F (West Coast customers call up to 5PM PST) , 10-5 Sat **1-800-262-0533 Orders only**

24 Hour Fax line (412) 962-0279 Canadian orders & Customer Service (412) 962-0533

APO,FPO,CANADA, add \$10 to Ground PR, HI, AI.ASKA add \$10 to Blue or Red MASTERCARD, VISA, DISCOVER no surcharge AMERICAN EXPRESS, 3% Surcharge Defectives replaced with same item
15% Restock fee for non-defective returns

Circle 12 on Reader Service card



To Order, Call 1-800-262-0533

Amiga SHOW-OFFS

Amiga Mouse Mat Blue or Red Amiga Solar Calculator S1
Amiga Corduroy Cap
Blue on White
Amiga T-Shirts
"Only Amiga makes it Possible"(Blue) \$9 \$13

for Amiga Showoffs.

\$1 for every hundred dollars bought redeem for AMIGA SHOW-OFFS

or "Make up your own Mind"(Red)
Amiga Polo Shirt Dark Blue with White

GOLDEN IV

New RC1000 RAM

for *Amiga 500* External RAM Expander 2-4 Meg RAM

W/2MB RAM \$229

Cordless Mouse

Cordless Trackball \$81

RC500 RAM AMIGA 500 512K RAM Expansion

\$49

MASTER 3A1 880K External Disk drive **\$82**

HAND SCANNER

W/TOUCHUP SOFTWARE FOR A500, A2000, A3000 \$265

AMIGA 500 EXPANSION SET

512K RAM & 880K Drive w/Clock/Calendar/Bat. Master 3A1External \$129

Master 3A-1D Drive

w/ LED Display

\$99

Western Pennsylvania's source for

Commodore

Computers Accessories

Authorized Amiga dealer for



A500 A2000 A2500A3000

Complete Amiga systems for

Home, Education, Video, and Graphic Arts

Complete Video Toaster Systems available Stop in or call for an appointment. On site demonstrations, installation and training available. Leasing and on-site service.

Computer sales are limited to walk-in sales and professional installations within our market area. No mail orders

(412) 962-0533

No One Knows Amiga Better Authorized Commodore Dealer Since 1980

1490 N. Hermitage Rd., Hermitage, PA 16148

Manufacturers'/Distributors' Addresses

From p. 96. **Expansion Systems**

44862 Osgood Rd. Fremont, CA 94539 415/656-2890

Forum Communications

500 108th Ave. N.E. 24th Floor Bellevue, WA 98004 206/646-6648

GFA Software Technologies

27 Congress St. Salem, MA 01970 508/744-0201

Gold Leaf Publishing

700 Larkspur Landing Circle Suite 199 Larkspur, CA 94939 415/381-7717

Great Valley Products 600 Clark Ave.

King of Prussia, PA 19406 215/337-8770

HiSoft

Distributed by Gold Leaf

HoloSoft Technologies 1637 E. Valley Pkwy., S-172 Escondido, CA 92027

ICD

1220 Rock St. Rockford, IL 61101 815/968-2228 800/373-7700

619/743-0089

Icom Simulations

648 S. Wheeling Rd. Wheeling, IL 60090 708/520-4440

Impulse

6870 Shingle Creek Pkwy., #112 Minneapolis, MN 55430 612/566-0221

InnoVision Technology

1933 Davis St. San Leandro, CA 94577 415/638-8432

Interactive Video Systems

7245 Garden Grove Blvd., Suite E Garden Grove, CA 92641

714/890-7040

Interplay Productions 3710 S. Susan, #100 Santa Ana, CA 92704 714/549-9001

Kara Computer Graphics 2554 Lincoln Blvd., Suite 1010 Marina Del Rey, CA 90291 213/578-9177

Mandarin Software Distributed by American

Software M.A.S.T.

1395 Greg St. Sparks, NV 89431 702/359-0444

Microbotics

1251 American Pkwy. Richardson, TX 75081 214/437-5330

Midwest Communications Corp. Four Tesseneer Dr.

Highland Heights, KY 41706 606/781-2200

Natural Graphics PO Box 1963

Rocklin, CA 95677 916/624-1436

NewTek

215 S.E. 8th St. Topeka, KS 66603 913/354-1146 800/843-8934

Nucleus Electronics

PO Box 1025 Nobleton, Ont. Canada LOG 1NO 416/859-5918

Ocean Software Distributed by Electronic Arts

Octree Software 311 W. 43rd St.,

Suite 904 New York, NY 10036 212/262-3116

On-Line Entertainment

14 Falcon Way Clippers Quay London E14 9UP, UK

Panasonic Communications Two Panasonic Way

Secaucus, NJ 07094 201/348-7000

Precision Software 8404 Sterling St., Suite A Irving, TX 75063 214/929-4888



EXAMINEDE ENTEGE

Hold On! How Low Can We Go? New Titles Daily • New Budget Titles Weekly

New Titles Da	aily •
Cold of the Pealm	TWO DAY THE
5th Gear Blackjack Academy Arkanoid	\$ 7.95 \$ 9.95 \$ 9.95 \$ 9.95
Arkanoid	\$ 9.95 \$ 9.95
Karate Kid 2 Mystery of the Mummy Battle Squadron	\$ 9.95
Battle Squadron Darius	4 0 05
Onslaught	\$13.95
Onslaught Silent Service Space Harrier 2	\$13.95 \$13.95 \$13.95 \$13.95 \$13.95
4 th And Inches	\$14.95
	\$14.95 \$14.95
Anarchy	\$14.95
All Dogs Go To Heaven Anarchy Arkanoid 2 Bard's Tale 2	\$14.95
Blasteroids California Games	\$14.95 \$14.95
Carrier Command	\$14.95
Chronoquest 1 Chronoquest 2	\$14.95
Danarius Fastbreak	\$14.95 \$14.95
Ferrari Formula 1	\$14.95
Flintstones Gauntlet 2	\$14.95 \$14.95
Harmony/E-Motion	\$14.95
	\$14.95
Kingdoms of England	\$14.95 \$14.95
Infestation Kingdoms of England Light Corridor North and South Ninja Spirit Photon Paint Residetile	\$14.95
Ninja Spirit Photon Paint	\$14.95 \$14.95
	\$14.95
R-type Rick Dangerous	\$14.95 \$15.95 \$1
Road Blasters	\$14.95 \$14.95
Starglider II	\$14.95
Sherman M4 Starglider II Steller Conflict Super Hangon The Fools Errand Theme Park Mystery World Droams	\$14.95 \$14.95 \$14.95 \$14.95 \$14.95 \$14.95 \$14.95 \$14.95 \$14.95 \$14.95 \$16.95 \$1
The Fools Errand	\$14.95
	\$14.95
X-Out Arcade Fever	\$14.95 \$16.95
Austerlitz	\$16.95 \$16.95
Blue Angels Collosus Chess X	\$16.95
Cyberbowl Dragons Breath Gunship	\$16.96 \$16.95
Gunship	\$16.95
Klaxx ' Pacland	\$16.95
Persian Gulf Inferno Stunt Car Racer	\$16.95 \$16.95
Turrican	\$16.95
Xenon 2 Atomic Robo Kid	\$14.95 \$17.95
Castle Master	\$17.95
Atomic Robo Kid Castle Master Escape from the Planet of Robot Monsters Paradroid '90	\$17.95
Paradroid '90 Wings of Death	
Wings of Death Budakon	\$18.95 \$18.95 \$18.95
Flood Future Basketball	\$18.95
Jumping Jackson Lords of the Rising Sun	\$18.95 \$18.95
Nightbreed Shadow Of The Beast Star Flight Sword Of Sodan	\$18.95
Star Flight	\$18.95
Sword Of Sodan	\$18.95
Sword Of Sodan Treasure Trap TV Sports Football Wings of Fury Midwinter	\$18.95
Wings of Fury Midwinter	\$18.95 \$19.95
Ninja Remix	\$19.95
It Came from the Desert	\$23.95
Turrican 2 TV Sports Basketball	\$18.95 \$18.95 \$18.95 \$18.95 \$18.95 \$18.95 \$18.95 \$19.95 \$19.95 \$23.95 \$23.95 \$23.95 \$24.95
	\$24.95
Fantavision	\$24.95

GAME PACKS

Quattro Sports (includes 4 games): BMX Racing, Italy 90 Soccer, Pro Tennis, Super Ski.

Heroes (includes 4 games):
Running Man, License to Kill,
Star Wars, Barbarian 2.

Star Wars, Barbarian 2. all for - \$18.95

Quattro Arcade (includes 4 games): SAS Combat Simulator, Pub Trivia, Nitro Boost Challenge, Pro Powerboat. all for - \$17.95

all for Wheels of Fire (includes 4 games):
Turbo Outrun, Chase : 1.Q.,
Powerdrift, Hard Drivin'.
all for -

T-N-T (includes 5 games):
Hard Drivin', All Points Bulletin,
Dragon Spirit, Xybots, Toobin.

\$19.95

\$29.95

\$14.95

Monster Pack (includes 3 games): Shadow of the Beast, Nitro, Infestation.

Premier Vol. 2 (includes 4 games): Mercenary, Backlash, Eliminator, Custodian.

NEW TITLES!

all for .

Gods	\$35
Super Car 2	\$35
SWIV	\$35
Super Monaco Grand Prix	\$35
Panzer Kick Boxing	\$35
Advanced Destroyer Simulator	\$35
Brat	\$35
Killing Cloud	\$35
Metal Masters	\$35
Moonshine Racer	\$35
Gauntlet 3	\$37
Nebulus 2	\$35
F-15 Strike Eagle 2	\$40
Herv's Quest (Gremlin)	\$40
Railroad Tycoon	\$40
Megatraveller	\$42
7	

EURO MAGS

Amiga Format w/ disk	\$9
Aniga Power w/disk	\$9
Amiga Action w/ disk	\$9
Amiga Computing w/ disk	\$9
C.U. Amiga w/ disk	\$9
Ace (no disk)	\$6
The One (no disk)	\$6
Raze (no disk)	\$6
Amiga User International (no disk)	\$6

SHIPPING

Visa, MasterCard, American Express: \$5 for up to 3 items, Add \$1 for each additional item.

C.O.D. (Cash Only) \$9 for up to 3 items, Add \$1 for each additional item

Outside U.S. - Call!

FORE MORE INFO or FAX ORDERS Call (305) 491-0398 Fax (305) 772-0334

Orders 1-800-888-9273 Only

Manufacturers'/Distributors' Addresses

Preferred Technologies 14540 East Beltwood Pkwy. Dallas, Texas 75244 214/702-9191 800/878-0010

Pre'spect Technics PO Box 670, Station H Montreal, Que. Canada H3G 2M6 514/954-1483

RGB Computer & Video 3944 Florida Blvd., Suite #4 Palm Beach Gardens, FL 33410

407/622-0138 800/848-5648

Shereff Systems 15075 SW Koll Pkwy., Suite G Beaverton, OR 97006 503/626-2022

Sierra On-Line PO Box 485 Coarsegold, CA 95614 209/683-4468 800/344-7448

Sir-TechPO Box 245
Ogdensburg, NY 13669
315/393-6633

Sony Corporation of America 3 Paragon Dr. Montvale, NJ 07645 201/358-4107

Spectrum Holobyte 2061 Challenger Dr. Alameda, CA 94501 415/522-0107

Supra Corp. 1133 Commercial Way Albany, OR 97321 503/967-9075 800/727-8772

The Vivid Group PO Box 127, Station B Toronto, Ontario Canada M5T 2T3 416/348-9809

Three-Sixty Pacific
Distributed by Electronic Arts

Tiger Media 5801 E. Slauson, Suite 200 Los Angeles, CA 90040 213/721-8282 **Titus Software** 28ter Avenue de Versailles 93220 Gagny France

True BASIC 12 Commerce Ave. West Lebanon, NH 03784 603/298-5655

Truevision Inc. 7340 Shadeland Station Indianapolis, IN 46256 317/841-0332

TTR Development 6701 Seybold Rd., Suite 220 Madison, WI 53719 608/277-8071

Videomedia S.E.D. Inc. 211 Weddell Dr. Sunnyvale, CA 94089 408/745-1700

VidTech International 2822 N.W. 79th Ave. Miami, FL 33122 305/477-2228

Virtual Reality Laboratories 2341 Ganador Court San Luis Obispo, CA 93401 805/545-8515

Vision Quest Route 1, Box 171 Eureka Springs, AR 72632 501/253-5264

Xetec 2804 Arnold Rd. Salina, KS 67401 913/827-0685 ■



InfoMarket

MEMORY FOR LESS

B HAIII BEGWOOT:		
256 x 1 150n.s\$ 1.25 ea.	CPUs	
256 x 1 120n.s 1.45 ea.	68000 16 Mhz\$ 35.00	
1 meg x 1 80n.s 5.95 ea.	68010 8/10 Mhz35.00	
1 meg x 1 100n.s5.50 ea.	68020 16 Mhz75.00	
256 x 4 100n.s 5.75 ea.	20 Mhz99.00	
256 x 4 80n.s 5.95 ea.	33 Mhz199.00	
256 x 4 80n.s. zips 6.95 ea.	68030 25 Mhz279.00	
	33 Mhz345.00	
256 x 4 100n.s. zips 6.50 ea.	50 Mhz375.00	
64 x 4 100n.s 3.00 ea.	Math Co's	
Paula / Denise26.50 ea.	68881 12 Mhz69.00	
1 meg x 8 Simm 80ns 49.95 ea	16 Mhz75.00	
1 x 4 DIPS in stock	20 Mhz50.00	
FATTER AGNUS95.00	25 Mhz125.00	
1.3 Kickstart ROM29.95	68882 20 Mhz139.00	
For Amiga 3000	68882 25 Mhz225.00	
1 x 4 Static Zips\$32.95	33 Mhz275.00	
256 x 4 80n.s	50 Mhz375.00	
Static Zips 7.00	All Crystals 10.00 ea.	
SPIRIT BOARDS	APO/EPO AK & HI Foreign	

IN 1000 1/2 meg — \$229.00 XRAM/500/1000 - 2 meg — \$309.00 GVP/A2000 RAM8 2 meg — \$179.00 **MEMORY WORLD**

Street Rd. & Bristol Pike Plaza II, Suite 134 Bensalem, PA 19020

215-244-7930 FAX 215-244-7932 Add \$3.00 S&H Add \$4.00 COD VISA / MC / CHECK / COD Other chip/speeds avail. — CALL

Call for shipping charges

4 meg — \$278.00

Circle 94 On Reader Service Card

SHARP

EXPRESS

Tampa, FL. 33612

SPECIAL

JX-100 (4X6) SCANNER

\$ 649.96

JX-300(PAGE) SCANNER \$ 1999.96

Re-Conditioned AMIGA * IBM * MAC

Order Only Line (800) 323-6511 (813) 977-3940 (813) 977-6511

FREE SHIPPING!

Circle 97 On Reader Service Card.

for the Amiga® Computer



Price \$249.00

- · 7.5" x 7.5" Active Area
- 1000 Lines Per Inch Resolution
- 5 Year Calcomp Hardware Warranty
 OS Release 2 Compatible
 All Amiga® Models (uses serial port)
 Includes Wiz Tablet, Pen, Cable, Power Supply & TriMedia Driver & Control Software

TRIMEDIA Incorporated

60 E. Hintz Rd. Wheeling, IL 60090 (708) 520-0730

Circle 87 On Reader Service Card

Authorized Amiga Service Center

IF YOU WANT 2 0

lease date for 2.0 operating system is July 1, 1991. If you are on our list, we will be calling you with full details. If not, please give us a call so that we may give you full details and put you on our preorder list. This will assure that you will be one of the first in the country to ive this upgrade

1.3 ROM Chip\$ 29.	00 A500 Keyboard\$ 99.00
8520 CIA Chip16.	50 A2000 Power Supply139.00
Fatter Agnus Chip 1MB 90.	00 A500 Repl. Drive w/ s/o 94.95
A500 Replace. Drive119.	00 Fattest Agnus Chip 2MB95.00
GVP 40 Meg	Agnus Extractor by Com16.95
Impact Plus599.	
All RAM Chips in StockC	
Paula Chip38.	O Svavest 44MB
A2000 Internal Drive99.	00 Removeable499.00
Quantum 52S H.D389.0	OO Sygvest 44MB Cartridge88.00
GVP 8/0 Hard Card 0K239.	00 Gary IC Chip17.00
Epvx 500XJ Joystick12.0	00 80 Meg Drive for
A500 HD Power Supply94.0	
A2000 Khd from Com 105 (

Over 600 products in stock for immediate shipping. Plea er own products in stock for immediate snipping. Pleas . We probably have what you need. We do repairs on Al computers with 2–4 day turnaround. A500 — \$125+S/H A2000 — \$190+S/H. Call for shipping on other items. pairs on Amiga — \$125+S/H.

C Software Hut, Inc. To order call (800) 848-0079

Philadelphia, PA 19145 In PA or for Information call (215) 462-2268

Circle 89 On Reader Service Card

House of Mouse

Your Mouse & Accessories Specialists

"O" Mouse \$69.95

Professional Quality Amiga Mouse

Lifetime Warranty

"If you use your Amiga professionally, or if you simply want the best replacement mous available for your Amiga, the "O" mouse is the one you want. I know, I've tried them all." George Graham

30 Day Money Back Guarantee FREE! Utility & Funstuff Disk w/every

Mouse/Trackball	,,	visa
Chic Mouse	\$29.95	M/C
AD Mouse		COD
Ad Mouse w/pad & holder		All Or-
Super trackball w/firelock	69.95	
Standard Trackball	44.95	ders
Mouse Pads		Shipped
5' Extension Cable	5.95	Same
Jniversal Joystick/		Day
Mouse Switch	29.95	Day

Phone: (308) 745-1243 or Fax (308) 745-1246 PO Box 130, Loup City, Nebraska 68853

Circle 99 On Reader Service Card.

Aamiga Warehouse

une	viemor	y speciali	SI
MEM	IORY	AdSpeed ICD	\$210.7
DRAMS 256x1 - 80 1.75 256x1 - 10 1.60	256x4 - 80 7.35 Monthly Special 1x4 - 80 \$29.95	Flicker Free AdSCSI 2080 2 Mg AdRAM 2000 2 Mg	300.00 259.99 172.99
256x1 - 15 1.30 256x4 - 80 5.90 1x1 - 80 5.90 1x1 - 10 5.50	Shop around and call us last. We will beat your	Novia 20i (incredible price Internal 2'/2" Hard Drive. High speed caching, auto DKB Software	Very fas
SIMMS 1x8 - 80 47.50 1x8 - 70 56.95 4x8 - 80 220.00 A3000 Memory	best quote on all the products we stock. Due to market fluctutations,	Kwickstart w/1.3 Insider II w/1 ¹ /2 megs MultiStart II Switch your FOM MegAChip 2000 w/Agnus w/mem 2 megs of C	333.00 hip RAMI
Static Zine	prices subject to	BattDisk w/o Mem	219.50

GOLDENIMAGE®

change without

Limited Time HAND MASTER 3A-1A SCANNER \$77.95 Great Price! MASTER 3A-1D \$239.95 \$87.95

Opto-Mech Mouse \$35.00 Optical Mouse 50.00 RC500 501 Clone w/switch 45.00 **Hard Drives**

333.00

179.95

\$349

219

435

w/Agnus w/mem 2 megs of Ch BattDisk w/o Mem

Supra 500RX 2 megs

Maxtor 100 meg 3'/2" 28ms Connor 40 meg 3'/2" 28ms Quantum 10S I PS 31/2* 19ms ntum 52 LPS 31/2" 19ms *For Software, Go To the Rest. For Hardware, Call the Best!!!*

VISA COD Aamiga Warehouse 1-800-942-9505 714-283-0499

Circle 98 On Reader Service Card.

NEW!! ULTRA HIGH RESOLUTION

from COLOR POSTSCRIPT • 24-BIT IFF • HAM • Standard IFF Over 4000-line Resolution - NO Scanlines - NO Curvature Distortion - Brilliant Color

HAMMOND PHOTOGRAPHIC SERVICES (213) 390-3010

Call or Write for order form, price list & sample 11280 Washington Place Culver City, California 90230

Own a Bridgeboard™?

You're not alone anymore!

Subscribe to CROSSINGS, the newsletter devoted to Amiga/PC compatibility, published monthly since December 1989. Join a worldwide network of Bridgeboard owners, and make real use of your Bridgeboard at last! \$US40 U.S./Canada, \$US50 overseas air mail. (212) 369-8131 for more info. Deland Editorial Services, Ste 115, 1646 2nd Ave., New York NY 10028

The Complete Software Package for Special Event Videographers

Create, Customize & Print Contracts, Schedules, Reports, Receipts, Packages, Crew Sheets, Editor Sheets, Directions to Job, Video Tape Labels

Track

Customer Data, Appointments, Payments, Sales Tax, Call Backs, Equipment, Jobs, Video Crews, Music & Graphics Libraries

Enjoy

Easy Operation, Freedom from Paperwork, Better Control, Free Tech Support, Bug-free Guarantee

Only \$399.95 - Includes Superbase Pro 3 Superbase 4 Compatible - Demo Available Call or Write Mr. Hardware at 516-234-8110 59 Storey Ave. Central Islip, N.Y. 11722 or Call A.M.U.G. BBS at 516-234-6046

Circle 91 On Reader Service Card.

InfoMarket



Talking Picture Dictionaries

SPANISH * GERMAN * CHINESE * JAPANESE

SPANISH ** GERMAN ** CHINESE ** JAPANESE **
All Words and Phrases Fully Digitized Speed **
Seven-Disk Set w Manual, On-line Dictionary, Ouizzes **
Amiga*
Romance Languages: \$89.95 Oriental Languages: \$129.95

FairBrothers, Inc. 5054 S. 22nd St. Arlington, VA 22206 (703) 820 1954

Please specify language when ordering. Free Brochure available . Send \$5 for demo disk (rebated on regular purchase). To purchase, send check or money order. All orders shipped UPS Ground. Add \$5 for COD or UPS Second Day Air.

Circle 100 On Reader Service Card.

AMAZING EXPRI

Tampa, FL. 33612

PRO-TEXTURES

For the serious 3D artist...

Professional 24 bit hi-res seamless texture images for 3D image wrapping and reflection mapping. 10 disk set including HAM versions as well.

Suggested Retail: \$59.95

Introductory Price: \$39.96

Order Only Line (800) 323-6511 (813) 977-3940 (813) 977-6511 SHIPPING! FREE

Circle 97 On Reader Service Card.

FREE - 6 DISKS - FREE **FULL OF SOLID GOLD HITS**

TRY US!

Get 6/3.5" disks full of our best selling NO VIRUS software for AMIGA® COMPUTERS.

Animation - Business - Games **Education - Utilities - Finance**

PAY ONLY \$5.00 SHIPPING/HANDLING

SATISFACTION GUARANTEED SINCE 1985 CREDIT CARDS ONLY - ORDER TODAY SMC SOFTWARE PUBLISHERS

619 931-8111

Circle 90 On Reader Service Card.

VISIONSOFT

PO Box 22517 · Carmel, CA 93922

MEMORY	UNIT	2MB	4MB	8MB
1 x 8-80 SIMM	\$49.00	98	192	376
4 x 8-80 SIMM	219.00	_	219	429
256 x 4-80	6.00	96	192	368
1 x 1-80	6.00	96	192	368
256 X 1-80	1.75	112	192	384
1 x 4-80 SC ZIP	35.00	140	280	520
ICD AdRAM 540	99	189	285	_
ICD AdRAM 2080	119	199	279	.429
IVS META 4	_	249	339	_
GVP II/8 SCSI HC	209	305	397	567
AdSCSI 2080	199	295	387	557

TRUMP PRO A500/49M469	AdIDE/TEAC 43M359
DL EXPRESS/MNP/FAX 205	AdSPEED229
AE 880K FLOPPY DRIVE 95	AdRAM 560/2M199
SUPRAMODEM 240099	SUPRA 500RX/1M135
SUPRA500XP/40M/512K539	BIGFOOT POWER95

ORDERS 800-735-2633 Information: 408-626-2633 Fax 408-626-0532 Call for Current Quantity Pricing.

Circle 86 On Reader Service Card.

Special Offer on Amiga 1000 Computers

Amiga 1000 Computer	\$3	349.95
Amiga 1084 Monitor		
1010 Disk Drive		

Through a special purchase with Commodore Business Machines, we have a number of A1000 computers, 1010 drives and 1084 monitors in stock. They are refurbished by Commodore and are in like new shape with all cables, manuals, warranty card, etc. They come with a full 90 day warranty. Please order early as quantities are limited.

We also carry the following products	for the A1000:
Insider II w/0K (1.5MB Cap)	
Each 512K RAM for Insider II	30.00
Kwik Start II	79.95
Rejuvenator	389.00

Software Hut, Inc. 2534 S. Broad St.

To order call 2534 S. Broad St. (800) 848-9079 In PA or for Info. call (215) 462-2268 se call for complete details on the second for the second for complete details on the second for the second for complete details on the second for the second f

Circle 88 On Reader Service Card.

Ouit Getting Ripped Off!!!

Public Domain/Shareware only \$2.00 per Disk. Over 800 Disks available including our new line of **European software!**

-Call or Write for a Free Catalog--**Amy Today** 640 WillowGlen Rd. Santa Barbara, CA 93105 (805)687-5643

Circle 84 On Reader Service Card.

COLOR RIBBONS & PAPER

Price Each Black Color T-Shirt Brother M1109 4.95 5.95 7.00 Citizen GSX 140 4.00 5.00 Citizen GSX 140 4C Okidata 192 5.00 7.50 Panasonic 1124 7.50 5.00 Seikosha SP1600 4.50 6.00 7.50 Star NX1000 3.50 4.50 6 75 Star NX1000 4C

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow T-Shirt (Heat Transfer Ribbon) Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Minimum orders \$25.00. Minimum S&H \$4.50. Call for other ribbons and supplies. Price & spec. are subject to change without notice.

RAMCO COMPUTER SUPPLIES PO Box 475, Manteno, IL 60950 USA USA (800) 522-6922 or (815) 468-8081 Canada (800) 621-5444



SIZZLING SOFTWARE



Over 250 Disks in Stock, Prices as Low as \$3 per Disk.

Free Brochures. Visa, MasterCard Accepted. Our Disks are Loaded! 3-Disk Adult Sampler: Send \$10, Signed Statement of Age (21+) to:

CLEARLIGHT SOFTWARE **PO BOX 1411, DEPT. A MILWAUKEE, WI 53201**

TANGENT COMPUTER SYSTEMS



Amiga Public Domain Software Distributor ONLY \$2.00 PER DISK!



We have over 700 PD disks. Titles include Fred Fish, Amicus, T.B.A.G., S.M.A.U.G., T.C.U.G., and more. Efficient same-day service. Call or write for a Free Brochure and Disk Catalog.

TCS • P.O. BOX 4534 • San Dimas, CA 91773-8534 • (714) 592-5924

Adult Graphics, Vol. 1

THE ULTIMATE AMIGA GRAPHICS DEMO

Public domain collection of attractive adult graphics, 1 disk: \$10; 3 disks: \$25; 10 disks: \$39; 15 disks: \$44. Shipping and handling is INCLUDED! State that you are over 18. Send Check or Money Order to:

Data Foundations • Dept. 100B, PO Box 9324, Akron, OH 44305

InfoMarket

25.00 each \ Animated Actions 2 Disk Volume

Background Bits 24 - \$28.00 WEDDING SET =6 Disks- \$49.95 Cool Colorfonts Collection- \$40. Pro-Quality Services Now Include: Postscript QMS Color Prints-\$12. Postscript IRIS 1800 dpi Color- Call Postscript Slides-8K-24 Bit -LOW \$

CV Designs 61 Clewley Road Medford, MA 02155 617-391-9224 Video Visions ADD \$4.00 S&H Assistance for every Video Need!



NATIONAL DISKETTES

SONY 3.5" DSDD .51 GENERIC 3.5" DSDD .39 (MIN. 100)

800-345-8619 415-490-4163 OR

CALL FOR BEST PRICING ON ALL DISEKTIES

MORE MEMORY FOR LESS

NEW for Amiga 3000 Only 32K Buffer Chip STATIC ZIPS \$20.00 Panasonic Printer \$32.95 each 1 meg x 4 1124, 1524, 1624, 1180, 1191 w/instructions 32 Pcs. \$30.95 ea Memory Board FPU Math Co-processor \$50.00 each 68881 - 20 MHz HP Laser Printer

MEMORY WORLD

EST

Street Rd. & Bristol Pike • Plaza II, Suite 134 · Bensalem, PA 19020 Attn: Amiga Dept.

215-244-7930 Fax 215-244-7932

Add \$3.00 S&H Add \$6.00 2nd Day Add \$4.00 COD VISA / MC / Check / COD

1 meg \$99.00, 2 meg \$147.00, 4 meg \$209.95

WOHS Info on the Best Ad-on for your Digiview Introductory Offer - Only \$19.95

Discover new, high-powered, clean white lites. No more shadows or hot spots. Brilliant reproductions. Double disk set includes all of the information necessary to easily put together the best lighting system ever developed for your Digiview along with samples and helpful digitizing hints used by pros. To order enclose check or money order for \$19.95 + \$2.50 s&h. (continental U.S./Canada only)
PCS - 11802 - 98th Ave. N.E. #5, Kirkland, WA 98034 (206) 820-6440 (WA residents add 8.2%sales tax)

MAIL ORDER CANADIAN

DANDAM SOFTWARE

CALL FOR **FREE** CATALOGUE 1-800-265-9576 (519) 974-3011 Fax: (519) 974-6643 A2000 HD 52MG \$499.95 • \$CDN\$ • AD Speed \$289.95 8408 WYANDOTTE ST. E, WINDSOR, ONT. N8S 1T6

Now On Video!! TODD RUNDGREN SPEAKS

Your chance to hear the wild inside story of how Todd Rundgren made his sensational new Amiga-based MTV video. See Rundgren's comprehensive, witty, hard-hitting story of his personal discoveries and despair, timumphs and crashes using the latest in Amiga hardware and software. Learn for yourself his technical breakthroughs and inside secrets! VHS, 60 mins. Professionally

Don't miss either of these crucial reports!

Grab a seat and be ... FRONT ROW WITH THE EXPERTS!

Brilliant? hour video of L.A. SIGGRAPH's Amiga Day marathon, jam-packed with up-close demon-strations & discussions of: VIDBO TIOASTER " CDTV, DISNEY ANIMATION STUDIO, IMAG-NE, DCTV and UNIX. Great visuals! interviews with hot artists and developers including: BRUMMBAER, STEVE SEGAL, BEICHARI VON WOLFSHIELD, BRAD SCHENCK, VICTOR OSAKA. On VHS.

Now only \$19.95 each+\$4 S/H each. Check or MO to:

Sweet Pea Productions • PO Box 912 • Los Angeles, CA 90290 Or call (800) 235-4922 7 days 24 hours with your Visa / MC number ready.

NEW PRODUCT FOR THE AMIGI... HARDWARE - SOFTWARE PACKAGE.



INTRODUCING....

Simple to install, no soldering required.

Features include:

Priced At 4995

- · Whole disk compressor can save an entire disk as two AmigaDOS files, retaining the copy protection. Files can then be transferred to any media for safe keeping.
- Increase floppy storage to 1.12 Megabytes of data using a standard DSDD disk. That's a 21% increase in
- · AMAX-II patch to allow the use of the Amiga drives to read and write MAC format.
- · Multi-DOS transfer program allows IBM, MAC, ATARI, and AMIGA files to be transferred to any DOS
- · Super Card AMI style backup system copy using one or more drive. Unit compensates for all drive speed incompatibilities. Multiple copies can be produced at the same time.
- · Order your SYBIL today for this multi talented hardware, software package.

SUPER CARD AMI II Back Up System

This hardware/software combination requires no soldering. The hardware unit installs in between the computer and the drive port (or internally if you have an Amiga 2000 w/2 internal drives). Our software is like no other, most titles are set up in easy to use copier files. When you want to back up a title just look it up in the alphabetical list and it can be backed up in as little as 60 seconds.

Super Card AMI II is always shipped with the latest software, currently version 2.0. This software is also available separately for \$9.95

SPECIFY WHICH AMIGA YOU HAVE WHEN ORDERING!!

A500/1000/2000/2500/3000 w/External Drive A2000/2500/3000 W/ two Internal drives *SUPER CARD AMI II WORKS ON NTSC (60 HERTZ) AND PAL (50 HERTZ) SYSTEMS. 5**69**95

CANADA ORDERS ONLY!!!

Now ordering products is easy. And Fast Delivery. We have set up a distributor just for you. Please place your orders by dialing. (519) 272-1528 or mail order to: P.O. Box 311, Sratford, Ontario, Canada N5A 6T3. For technical assistance dial (503) 647-9022 Thursday & Friday 10:00 A.M. to 3:00 P.M. Pacific Time!!!

UTILITIES UNLIMITED OF OREGON. INC.

P.O.Box 532 North Plains, OR 97133 ALL PRICES IN U.S. FUNDS. ORDERS TAKEN 24 HOURS A DAY AT (503) 647-5611 FAX LINE (503) 648-8992

SUPER-CARD UTILITY PACKAGE

Copier Construction Set - Create copier files for Super-Card AMI II v1.0 software.

Disk Analyzer - Display format and structure information of tracks. This will help determine which mode you should use with Super-Card AMI II

Drive Alignment Checker - Checks drive alignment of ALL

Drive Speed Checker - Checks drive speeds of ALL drives.

MFM Editor - Read & Write MFM data. Works in conjunction with Copier Construction Set to help create copier

\$39⁹⁵

KICKSTART BOARD

When using KICKSTART 1.4 (WB 2.0), approximately 37% of the existing software will not work. Some programs still require KICKSTART 1.2 to work. This board takes care of the problem. Simply remove your existing KICKSTART ROM and plug our board into the KICKSTART ROMs on our board, so you can have 1.2,

1.3, & 1.4 all of the flick of a switch! Works with ALL Amiga computer and accessories such as processor accelerators

\$3995

BOOT DRIVE BOARD

Ever wanted to boot from your DF1 drive before? What are you going to do if your DF0 drive dies? Tired of that annoying "click" caused by unused drives? Eventually, that clicking will wear out your drive! The BOOT DRIVE BOARD installs INSIDE your Amiga computer (all models supported), and allows the disabling of you DF1 drive. It also allows you to "swap" the use of

your DF0 and DF1 drives without removing them! You can boot your system on your DF1 drive.

Add \$5.00 Shipping and Handling - Add \$4.00 C.O.D. Add \$3.00 to all foreign shipments. VISA and MasterCard are accepted.

The Last Word

Kudos, complaints, comments, and concerns from AmigaWorld's readers.

AMIGAWORLD, DA!

It's a great dial (sic) of luck to buy *AmigaWorld* here. It's very expensive, but your magazine is so good that money dont (sic) play any role when I see a new issue. Amiga is very pupular (sic) in Moscow. Lots of Soviet musicians use Amiga; also Amiga is used for video-titling and advertisement on Soviet TV.

I have rather strange hobby: I collect viruses and anti-virus programs. I have more than 50 for Amiga. Now I am trying to learn C. Also I am interested in graphics hints for DPaint III.

I would like to have a pen-pal, so I give my address.

Jury Vladimirov 121019 Moscow, USSR KALININ av. 40, apt. 49 ing from high ground—perhaps from an ivory tower?—with his concern about "serious" and "nonserious" computers and serious applications. If he were to read Tim Holloway's fascinating article, "The Object-Oriented Amiga Exec," in the January 1991 issue of *BYTE*, he would better recognize that we Amiga owners possess a real high-efficiency wonder that gives the multitasking and windowing ser-

Amiga is very pupular (sic) in Moscow.

CEREAL INTERFACE?

In last March's Repartee, Marilynn DeSilva urged finding a biodegradable substitute for the ubiquitous styrofoam chips used to pad sensitive components. Such a substitute does indeed exist and is actually used by the Dutch company Corbian International BV. It's white, it's spongy, it's edible! It's...popcorn! This is no joke. Corbian actually packs its products in heat-expanded maize kernels. They do not recommend eating the stuff, but you could always take a walk in the park and feed it to the pigeons.

Ragnar Fyri Asker, Norway

NO SERIOUS APPLICATIONS?

Did you print Robert D. Freeman's letter ("In the Name of Science," May, p. 8) to see how cranky folks like me would react?

Mr. Freeman appears to be speak-

vices in one-half to one-fourth of the memory that Apple and IBM computers need.

The crew at the Stanford linear accelerator facility linked Amigas to IBM mainframes over a year ago, and they coordinate the whole works with ARexx on the Amiga and Rexx on the mainframes. That sounds pretty serious to me. I have also read of medical imaging applications with the Amiga, and I would assume that the folks at NASA are doing something "serious" with their Amigas, too. And people who do professional video production and animation with Amigas probably think they are also using serious applications.

For the benefit of Mr. Freeman and other uninformed folks, *AmigaWorld* might do well to prepare a list citing its descriptions of "serious" Amiga applications over the years.

Stan Skirvin Scottsdale, Arizona

AND SPEAKING OF SERIOUS. . .

As a pathologist and Amiga owner, I have had difficulty finding other

pathologists or, indeed, any other physicians who currently use Amiga computers. Pathology is undergoing a revolution in the use of computers for image analysis (automated interpretation of pap smears using neural networks, measurement of DNA content of cells in tumors, interpretation of immunological markers, and so on), but I find that all the available commercial systems use IBMs or clones, in spite of the fact that the Amiga's superior graphics capabilities would seem to make it a natural choice for such systems. If anyone knows of ways I might get in touch with other physicians who use Amigas in their work, please let me know.

Peter K. Shireman, MD Providence-St. Margaret Health Center 8929 Parallel Parkway Kansas City, Kansas 66112

A LOT OF B(L)ARNEY

April's "Chief Concerns" is another example of Barney's blarney. You seem more intent on citing cliches and kissing up to new leaders at Commodore than in making critical analyses of that company's vacillating business strategy.

Bryant Hayward's SOAP BOX editorial in the same issue (p. 112) is an excellent analysis of the IBM-Amiga situation. Commodore's selling tons of game machines may be a quick shot in the arm, but it does little to expose the Amiga OS to the computer world. John Malone's insight on Unix (April's "Repartee") echoes the same ideas: Commodore needs to get more applications running under Amiga-DOS. People buy computers for applications, not for fun door stops.

James D. Creasy Danville, Pennsylvania

Send your letters to: The Last Word, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for clarity and length. ■

ATONCE

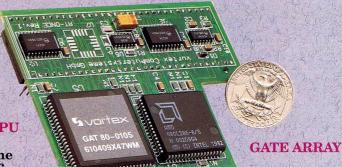
THE ULTIMATE PC/AT EMULATOR FOR YOUR AMIGA 500/ 2000

\$398

Manufacturer's Suggested Retail Price

80286 CPU AND MOTOROLA 68000 CPU

ATonce is based on the standard 16 Bit 80286 AT microprocessor. Each ATonce comes complete with a high quality original Motorola 68000 CPU.



The ATonce
Gate Array, the ATonce
Chip-Level Emulation and
the ATonce AT-BIOS give
the emulator a very high
degree of AT compatibility.

THE INCREDIBLE SPECIFICATIONS OF ATONCE

ATonce is the ultimate PC/AT emulator for your Amiga 500 or Amiga 2000 computer. It is developed and produced in Germany by vortex Computersysteme GmbH.

ATonce gives your Amiga a complete AT emulation, that includes an AT compatible BIOS, emulation of the parallel and serial ports, sound, RTC and CMOS RAM. ATonce supports Commodore compatible hard disks, internal/ external floppy drives as well as internal/ external RAM expansions. Full 640 KB of DOS memory are available. All memory above 1 MB can be used as Extended/ Expanded Memory. The "Protected Mode" is fully integrated.

ATonce emulates the following video adapters:

ATonce emulates the following video adapters: EGA-/VGA-monochrome-graphics (as far as this is possible with an Amiga), CGA, Hercules, Olivetti and Toshiba 3100. While running as a task within AmigaDOS, ATonce does not affect the normal operation of your Amiga and is totally transparent when

not in use.

Each ATonce is supplied with a high quality low power Motorola 68000 CPU, saving you time with the installation and providing a high degree of reliability. Thanks to the use of a custom made Gate Array and SMT technology the ATonce board is incredibly compact and easy to fit. In the Amiga 500 ATonce plugs directly into the socket of the 68000 CPU. In the Amiga 2000 it is plugged onto the extra adapter which is fitted in one of the Amiga slots. No soldering is required. Fitting is a 10 minute operation and full installation instructions are included in the user manual. A 3.5" Amiga floppy disk is supplied that contains the installation and emulation software and other useful tools. DOS and the adapter are not parts of the delivery. For further information or updates, please

contact your local Amiga dealer or call

Compuserve Mailbox # 100015,330.

ATonce runs with the 7.2 MHz clock speed of

the Amiga. The Norton SI rating is 6.1.

15 programmers & engineers, 4 custom chips, 350,000 lines of code and 5325 cinnamon cats later...

n early 1982 a group of brilliant computer designers in Los Gatos, California set out to create a new kind of computer. Their dream was to build a machine that would contain the visual power that other computers lacked. So they designed breakthrough

graphic coprocessors, powerful sprites, and then built it all around NTSC video timing. The nickname for the machine was Lorraine, and its mascot was a red and white bouncing ball.

Thanks, Jay

In October of 1985 Jav Miner and his team of pioneers brought a stunning new creative tool to the world. The Amiga was a shining beacon of the future to a special breed of hackers, artists, and visionaries. One group of these hackers was drawn together from

Team Toaster: Hardware: Tim Jenison, **Brad Carvey** Gary Krohe Charles Steinkuehler. Software: Tim Jenison Stuart Furguson, Steve Hartford, Allen Hastings. Daniel Kaye, Steve Kell Jamie Purdon. Steve Speier, Peter Tjeerdsma, Ken Turcotte. Documentation: Robert Blackwell Nick Lavroff,* Brent Malnack Steve Peterson? Tony Stutterheim. Software Design: Paul Montgomery, Mark Randall, Kiki Stockhammer.

*not pictured

around the country to form NewTek in Topeka, Kansas. They shared a common desire to expand on the technological marvel called the Amiga. They saw the Amiga as more than a computer, it was the beginning of a revolution.

The Super Amiga

What if the Amiga had more resolution, more colors, more



more speed; in short, more of everything that makes the Amiga great? It wouldn't be like a computer anymore. It would be as powerful as expensive network-level video equipment. But it would mean designing four complex VLSI chips, it would mean writing 350,000 lines of assembly language software. Ultimately it would mean inventing whole new technologies. Just the kind of insane challenge that hackers can't resist. Perhaps more than anything, the fact that "it couldn't be done" is what drove "Team Toaster"

"It'll Never Ship"

to do the impossible.

In early 1987, Team Toaster moved away from the rest of NewTek to a secret location codenamed "Alcatraz." No office hours, no phone calls, no interruptions. They worked 70 hour weeks. They invented bizarre tricks to drive the 68000. copper, and blitter to new levels of performance. They evolved strange hardware hacks to emulate expensive parts. They concocted their own cinnamon candy. Building the

Circle 37 on Reader Service card

more ambitious project

1-800-843-8934

than the Amiga itself. Every night, every weekend, every holiday, the world went about its business, and the lights at 'Traz kept burning. It didn't matter what anyone else said, Team Toaster was racing after a very personal dream.

"We Have Toast"

In October 1990 the Video Toaster® shipped. The world noticed. Everyone from USA Today and The New York Times, to Business Week and Rolling Stone, is calling the Toaster the hottest video product ever. It has become the most successful Amiga product of all time.

In fact, the Toaster is so hot that it's bringing the Amiga to new markets. The Video Toaster stand-alone system (an Amiga 2000HD with factory-installed Toaster) was the hit of Comdex, the world's largest IBM PC show, and was even acknowledged as the hit of MacWorld Expo by MacWeek Magazine. The Video Toaster is giving our dealers the opportunity to win over the corporate, educational, and pro video users that the Amiga needs for success in the nineties.

When the Amiga shipped in October 1985 it held the promise of video on a desktop. The shipment of the Video Toaster fulfills that promise. And by the way, the lights are still on at 'Traz.





Amiga is a trademark of Commodore-Amiga, Inc.

This sign sat

proudly in front

of Amiga head-

quarters in Los

Ĝatos, California,

where the desktop

video revolution

began in October